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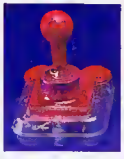

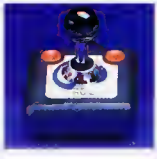

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THE AMIGA DIMENSION

When I was in Canada recently for the World of Commodore Show, I met two people who were excellent examples of the power of the individual in the Amiga Dimension. They were the programmers – completely independent of each other and working thousands of miles apart – who had been responsible for the creation of Gold Disk's exciting Moviesetter (reviewed in this issue of ***AUI***) and Readysoft's shortly-promised and equally exciting from the publishing point of view, Macintosh Emulator. Both programmers are still students – though now already earning, one hopes, substantial rewards for their talents.

Moviesetter's creator is a student at Waterloo University near Toronto who went on 6 months work experience to Gold Disk. He initiated the Moviesetter project and virtually carried it out alone. To do so he had to take a few months extra off from college, which meant a year away from his course. With some months over, he is now engaged on another Gold Disk project!

The Mac Emulator, likely to be an exceptional aid to the Amiga in the DTP field, literally arrived on U.S. company Readysoft's doorstep in a letter from a student at Auckland University in New Zealand. He is, of course, an ***AUI*** reader. He told me, "I didn't have a Mac available as they are too expensive, so I wrote an emulator." As simple as that. . .

The Amiga is a dimension where young talents – both programmers are only just past twenty – can have an important individual impact. Because of the way the Amiga is built, there is, generally, no need for the big teams and high prices that are the rule for commercially developed programs for other professional standard personal computers. Individuals can create ideas and execute them. And while most of us will never aspire to creating Moviesetters or Mac Emulators, we can achieve remarkable results. The new series in ***AUI***, **Introducing the Amiga**, began last month and in this ***AUI*** a series we start on **Intuition** are intended to help everyone gain greater understanding and the ability to exploit the tremendous power we each have at our command when we enter the Amiga Dimension.

Antony Jacobson
Managing Editor and Publisher

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NEWSFILE

Automatic Paper Feeders For Laser Printers

BDT's LaserMate range of automatic paper feeders for laser printers, now available from Action Computer Supplies, improves throughput by providing substantial reservoirs of paper and envelopes, so freeing operators from the chore of constant refills. Operators can also switch bins by simple commands from the terminal, invaluable where differing types of stationery are in regular use.

The range includes three models, all compatible with standard laser print engines such as the Canon SX and Canon LB8 Series II, the HP Laserjet Series II, Brother HL8 and Ricoh 4080 and 4081. Shown is the middle of the range LaserMate IIIe, which has three 220-sheet paper bins and a bin holding up to 60 envelopes. Price: £1126.00.

Contact: Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middx, HA0 1WL. Tel: 0800 333 333.

The First AMIGA EXPO in Europe

The first Amiga - exhibition, AMIGA EXPO 89, in Europe, will be held in COPENHAGEN, DENMARK from the 20th of March to the 23rd of March, in the old stock exchange and trade house, called BOERSEN.

It is the very first exhibition of its kind in Europe. The exhibit's sponsors tell us that the reason is that Denmark is the No. 1 Commodore - country, with the highest amount of Commodore units sold per head!

The organizer of the exhibition, is FORLAGET AUDIO, which is a publishing house, that amongst other titles publishes the Danish & Swedish Commodore magazine "Independant COMputer". About 20 exhibitors will demonstrate the various Amiga applications, that are for sale in the European market, from text editing tools, to high end video production programs. The Organizers predict a total of about 6000 visitors, from Denmark, Sweden and the rest of Europe. The organizers plan to make AMIGA EXPO an annual event, to take place in Denmark every year in March.

Contact: Forlaget Audio A/S, St. Kongensgade 72, DK 1624 Copenhagen K, DENMARK, Tel: 45 1 91 28 33.

Code Master's Price Increase

If you have not yet heard or read about the budget game price increase, since November 1988, all new Code Masters low cost games were released with a £2.99 R.R.P. Prior to that date Code Masters low cost games had been priced at £1.99 R.R.P. Now these games are being re-priced at £2.99, effective from February 1989. Code Masters has explained the increase as "assisting in financing Code Masters exciting development programmes." Additionally the higher price positions Code Masters above £1.99 budget games. This is an accurate reflection of Code Masters superior quality, Code Masters tells us.

Contact: Code Masters Software Co Ltd, Lower Farm House, Stoneythorpe, Southam, Warks, CV33 0DL, Tel: 0926 814132

Accodata introduces a low cost stand for dot matrix printers

Accodata have launched a new compact multi-feature stand for all popular standard or wide-carriage dot matrix printers. It incorporates a compact paper catcher and raises the printer to the optimum angle for ease of monitoring, printing and paper feed functions.

The new Accodata micro printer stand's tray stacks over 500 sheets of continuous paper and a universal two piece construction ensures optimum support and adjustment for 80 and 132 column printers. Cable management features on either side prevent power cords interfering with paper flow. Foam pads absorb noise vibration and rubber feet prevent sliding when in use.

Free smoke alarm

A Black and Decker smoke alarm is offered free with every order from Action for either five boxes or more of Dysan diskettes, or ten Dysan data cartridges. The alarm is supplied complete with battery.

Action Computer Supplies stocks full ranges of both Dysan data cartridges and Dysan 8in, 5.25in and 3.5in diskettes. All are available for next day delivery at discounted prices. Contact: Action for further information.

The Integrater and Professional for the A500

The INTEGRATER is a basic system consisting of: a 20 Megabyte SCSI hard disk; a 3.5 inch floppy disk drive; a 2 Megabyte RAM expansion (UNPOPULATED); a real time clock; an AC power station; and software & cables.

The PROFESSIONAL is a complete system consisting of: an AMIGA 500 with 1 megabyte of RAM; a multisynch monitor; a 30 megabyte SCSI hard disk; a 2nd 3.5 inch floppy disk drive; a 3rd 5.25 inch floppy disk drive; fully populated 2 megabyte RAM expansion; a 2088 Bridge Board; a real time clock; an AC power station; and software & cables.

All products carry a twelve (12) month Limited Warranty on all parts and labour. All software updates will automatically be sent to all registered owners at no charge.

Contact: Condor Computer Ltd, 31 Palace Street, London SW1E 5HW. Tel(01)828-9755.

Artronics

A new name in the UK computer industry - ARTRONICS - has begun the year with a strong range of software.

Built on the foundations of the Cascade Games label - publishers of Cassette 50 and ACE - the company announced new releases for the IBM PCs and compatibles, Commodore-Amiga, and C64.

Products due out in the first quarter include serious as well as entertainment software, Artronico tell us

The first view modules in a Master Series of PC Business Software will be PC IMMUNISE, MENU MASTER, MONEY MASTER, TIME MASTER and QUOTE MASTER.

Contact: Artronic, 1-3 Haywra Crescent, Harrogate, N. Yorkshire HG1 5BG, England. Tel: (0423) 525325.

COMPUTER TRADE FORUM

NEW CONCEPT COMPUTER TRADE SHOW

The Computer Trade Forum, to be held at Olympia, 18–19th April 1989, combines seminars, conferences and an exhibition to give both vendors and distributors an opportunity to meet with the dealer community. Covering the business and leisure market, and sponsored by the British Microcomputer Federation, the event will gather dealers, distributors and hardware and software manufacturers under one roof for the first time.
Contact: Montbuild Ltd, 11 Manchester Square, London W1M 5AB.
Tel. 01–486 1951/487 5831.

The high cost of hacking

An employee on the Express and Star in Wolverhampton has been dismissed for gaining access to the computer and reading a memo on another member of staff.

Staff are now taking a ballot on whether to hold a one-day strike in protest.

Leader of the National Union of Journalists on the site supports the employee.

The case comes as the Law Commission takes submissions on whether the law should be changed to make computer hacking a criminal offence here as it is in the US.

In a report published last September the Commission concluded that current law was inadequate to deal with hacking where no fraud or criminal damage had taken place.

LAN APPLICATION SOFTWARE MARKET BOOMS

While sales of LAN hardware have surged recently, the market will not reach its potential until application software designed from the start to make use of the advantages of networks is available. Recent technical developments will allow much more capable LAN applications. This and other key findings are revealed in a new report, "Application Software Markets for Microcomputer Local Area Networks", just released by Market Intelligence Research Company.

Total revenues from all microcomputer LAN application software were $55 million in 1984. By 1987 the total had risen to $234 million. Revenues will continue to rise, exceeding $1 billion in 1991 and reaching $4.1 billion in 1994. Growth will be especially strong in the vertical industry market segment, and the database and text-handling segments will also see high growth.

Types of software covered in this report are numerical data handling (database management systems and spreadsheets), text handling, groupware, accounting, project management, specialized vertical industry, and other. Each segment is analyzed in terms of sales revenue, revenue growth rate, market trends, and competitor analysis and market share. The market is also broken down by network operating system: Novell NetWare, NetBIOS, DOS 3.1 and Mac OS, LAN Manager, LAN Server, and other proprietary network operating systems.

Other topics include industry trends, industry history, strategies for success, competitor profiles and a listing of industry participants.

The report is based on extensive telephone interviews with marketing and technical experts from selected companies in each market segment. This information was verified by thorough study of all secondary sources available.
Contact: MIRC Europe, 55 rue Vandenhoven, 1200 Brussels, Belgium.
Tel +32(2)762 2781.

Inkwell Systems Moves

Looking for INKWELL SYSTEMS, manufacturers of precision light pens and graphic software for Commodore computers?

Inkwell Systems has moved from San Diego and is now located at 1050-R Pioneer Way, El Cajon, CA., 92020, (619) 440-7666.

Intel 80486 chip

Intel's 80487 chip, will run software three to four times faster than its predecessor, the 80386.

The chip achieves its speed via the integration of previously separate elements, for example, the cache controller and maths coprocessor.

In addition, some instructions have been hardwired allowing them to be processed at a faster rate. With the 80386 they have to be loaded from microcode.

But apart from speed the 486 and 386 are similar, sharing memory limits.

Initial supplies of the 486, likely to be used in network serves and multiuser systems, are expected in the third quarter, with PC makers suggesting the price could be as high as $1,500 U.S.)

PROGRAMS

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Merge CLI Activities
With Amiga Basic

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A Russian Game You'll Love

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ATOMIZE
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And "Weird" Characters

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Converts Object File
For Manx C Acceptance

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ShowILBM

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Bankn — V1.5 of a complete checkbook system. One of the most useful PD programs.
FivelnLine — Board-playing game similar to Go Moku, Ristnotta etc. Fast-paced and quickly addictive!I/S
MarkII — V 2.4c of "mouse accelerator" program that also includes hotkeys, features of sun mouse, clicktofront, popcli, title bar clock with a bbs online charge accumulator, and much more
MemTrace — Routines to help debug memory allocation and freeing during program development
PcPatch — Patches for PCCopy and PCFormat from the 'EXTRAS 1.2' disk, to allow reading/writing/formatting 3.5 inch 360k (2 sides/40 Tracks/9 sectors) MS-DOS disks.
ReadmeMaster — A nifty little database for finding those programs that you know exist somewhere (??) in the AmigaLibDisk library.
View — A mouse-oriented text file reader.

FISH 164
C-Functions — A group of four little C-functions to add to your library to make your programming life a little easier.I/S
DiskSalv — Very useful program to recover files from a trashed AmigaDOS disk. Can also "undelete" files deleted by misteke
Hed — A handy little editor that is more user-friendly than "Ed".
Newton — Uses the "Newtons Method" algorithm to estimate both real and imaginary roots of a polynomial of degree 20 or less.
NewZAP — A third generation multi-purpose file sector editing utility.
PcView — Provides the PC community with the opportunity to display IFF pictures to the best of EGA's ability. Displays Amiga pics, IBM-PC Deluxe Paint Pics, Apple II-GS Deluxe Paint Pics and others in the IFF standard format.I/S
PolyRoot — Another Polynomial root-finder using the Newtonian algorithm.
PrtDrivers — Printer Drivers for Digital Equipment's LN03+ laser and Mannesmann Tally's MT420d dot matrix.
Zoo — A file archiver, much like "arc" in concept. Includes some nice features that "arc" lacks.V2.00

FISH 165
Conman — V1.3 of extremely useful replacement for the standard console handler, provides line editing and command line histories
CPM — Another CP/M emulator. Emulates CPM with Z80 processor.I/S
Persnag — A program to aid in performing color separations on Epson JX 80 printers.I/S
PlotView and Plot2Am — For viewing UNIX plot files
RamCopy — Copy program designed for machines with 1 meg and only one disk drive. Copies in one pass
SPUDclock — Simple program that uses the narrator device to speak the time at certain user specified intervals

FISH 166
AutoGraf — Collects and graphically displays information on auto mileage, such as miles per gallon, cost per mile, miles driven, highs, lows, averages etc.I/S
Crel — A C cross referencer program. Prints out your code with line-numbers and complete key-word cross-referencing I/S
MultiCalc — RPN type graphic calculator. Generates answers with extreme precision. Mouse driven with lots of features.
Stavia — PD clone of the UNIX 'vi' editor.V3.10a I/S

FISH 167
CDecl— English to C (and vice versa) translator for C declarations. This little gem updates F114 I/S
CLIcon — Allows you to run cli programs from the workbench
CloneMe — Another ingenious perversion in the screen hack category. Don't miss this one . . . surely destined to become a classic!I/S
DSM— (Dynamic Sound Machine) Demo version with "Save" disabled of a program that will take any IFF sound or raw data and save it as a totally self-contained, runable program
MRPrint — A cli-based text file printing utility with lots of nice features, including tab-to-space expansion, page headers, line numbers, margin control with line-splitting and pagination correction, ARP wildcard support, and auto-rejection of files containing binary characters.V3.1 I/S
Smus3 6 — Enhanced version of the smus player on F58.
Sounddemos — Some very nice demos for showing off the incredible audio power of the Amiga! 100% assembly, make sure the stereo is connected!

FISH 168

FISH 169
These two disks make up the "Matt Dillion Special". They contain binaries and sources to the latest versions of a great deal of Matt's many programs. Please note that if you plan on recreating any of these programs, then it is quite possible that you will need information from both disks.

FISH 170
Attterm — Communications program utilizing IBM 3278 terminal emulation.
Dis6502 — A ported 6502 disassembler with support added for C64 binary files I/S
FastText — Blitter based fast text rendering routines written in assembly. Unique in the fact that they speed up rendering of non-proportional fonts of any height and from 4-16 pixels in width.I/S and test prog.
MRBackUp — A hard disk backup utility that does a file by file copy to standard AmigaDOS floppy disks. Includes file compression. V 2.4
PtrAnim — Nifty pointer animation program, includes lots of samples, a utility program and instructions on creating your own animations
Surf — Generates bezier surfaces of revolution. Will produce some amazing pictures of wineglasses, doorknobs, or other objects one could turn on a lathe. Includes the capacity to map IFF image files onto any surface that it can draw.I/S
Turbo — Opens a small window with a gadget that when selected, turns off bitplane, sprite, copper and audio DMA, presumably to increase system speed.I/S

FISH 171
AZComm — Modified version of Comm 1.34 that contains Zmodem send, receive and resume receive
Maze — A couple of very nice demos for the creation and use of single-solution mazes, one of which is practically a stand-alone game.I/S
Sozobon C — Atari ST version of what appears to be a full K&R freeware C-compiler, assembler and linker. The compiler main pass and the assembler were compiled and tested on an Amiga A2000 with only minimal changes and they appear to work (to the extent that they believe they are running on an Atari-ST), so an Amiga port should be relatively easy.
Xoper — Very comprehensive program to monitor and control system activity. Monitor cpu, memory usage, ports, interrupts, devices. Close windows, screens, show loaded fonts or last Guru code number. Clean up memory, flush unused libraries, devices, fonts etc and a whole bunch more!!I/S

FISH 172
DataToObj — A utility to convert raw data files (sprites, image data, text, etc.) directly into object code which can then be linked to the main program without the need to go through the compiling process.I/S
Handshake — A full featured VT52/VT100/VT102/VT220 terminal emulator.
MFix — Small program to insert in the startup-sequence of the commercial program, Marauder II, from Discovery Software, International. Whenever the copy process is started, the rainbow screen is covered by a bare screen until the copy is finished. The author claims a 25% decrease in copy time
PopInfo — A "shrinkable" workbench utility to show you some info that Workbench doesn't, such as free memory on external devices, chip, fast, and total ram usage and more I/S
ProCalc — A program that simulates an HP-11C programmable calculator
Spiff — Make controlled approximations between two files.I/S

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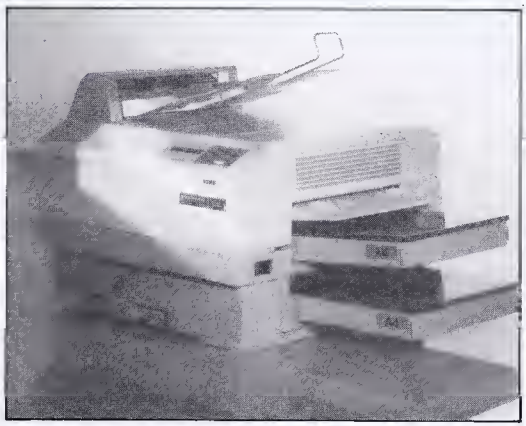
Aunt Arctic Adventure

Aunt Arctic Adventure from Mindware International of Ontario, Canada is a new multi-level arcade game in which Charlie the Chimp has talked his good friend Penguin Pete into helping him rescue his Aunt, who has been kidnapped by Big Borus, the evil ringmaster, who has forced her to work in his circus in the Arctic. You must battle your way through each of 50 levels (each of which is four by four screens in size) to rescue his Aunt.

The new game supports both players on screen at the same time operating as a team. There is also a one-player mode.

Aunt Arctic Adventure is priced at $39.95, and is the latest entertainment product from Mindware International, makers of Charon 5, an action/strategy game. Other products from Mindware include Page-lipper Plus F/X animation editing and compiling software, and Descartes! mathematical graphic system. For more information contact Mindware International, 110 Dunlop St., West, Box 22158 Barrie, Ontario, Canada L4M 5R3. Tel. (705) 737-5998.



EXTENDED MEMORY LASER PRINTER

Mannesmann Tally has introduced the MT910EM, a 10 page a minute machine with 2Mb of memory that can print a full page of high resolution 300x300 dpi graphics. Priced at £3399.00, the printer is suitable for graphics applications where a high level of detail is needed, said the company.

With a recommended work load of 5000 pages per month, the MT910EM offers 300,000 pages per month, the MT910EM offers 300,000 page engine life before refurbishment. Resident printer emulations include HP LaserJet Plus, Epson FX, IBM ProPrinter and Qume Sprint 11 Plus. As standard there are 24 resident fonts, with a full range of HP compatible fonts in cartridge or software format.

The launch of the MT910EM completes the company's mid range page printer lineup, which, in addition to the standard MT910, includes a sorter/collator, desktop publishing and graphics language models.

Contact: Mannesmann Tally, Molly Millar's Lane, Wokingham, Berkshire. Tel: (0734) 788711.

BYTES & PIECES SLASHES HARD DRIVE PRICES

Now there is a price drop, hard drives will become more affordable to many people, Bytes & Pieces tells us.

Their line includes: 2.5 megs total with clock for the A500 £475, 2 meg total for the A1000 £399, 512K for A500 £119, 42 meg hard drive system A500/A1000 £475 complete, and 84 meg system only £699.

Bytes & Pieces also specialises in additional hard drives and upgraded chips for A500 and A1000 machines. Hard drive systems can be from 20 megs to 380 megs and tailored to the user's requirements. Contact: Bytes & Pieces, 37 Cecil Street, Lytham, Lancashire, FY8 5NN. Tel: 0860254344.

New Fleet Street Editor

Fleet Street Editor, a popular desktop publishing package in the PC market has been expanded and updated to appear to an even wider audience, Mirrorsoft tells us.

New Fleet Editor is for anyone – from secretary to managing director – who wishes to enhance the appearance of their word – processed documents.

The major change to the program is the inclusion of Bitstream's Fontware Installation Kit, the Charter Roman typeface on disk, and a selection of ready – to – use soft fonts. This significant addition to the New Fleet Street Editor package has been made for two reasons:

HP Laserjet and compatible laser printers are fast replacing daisy wheels printers in many offieces, and it effectively gives HP Laserjet+/Series II (and compatibles) users Post-Sc ipt quality outpus and a wider choice of fonts.

LEASED LINE MODEM MARKETS TO DOUBLE

The global leased line and private line modem markets are forecast to generate more than $2.3 billion in revenues by 1994 representing a two-fold increase over 1984's revenues of $1.3 billion (£800 million).

This strong growth and highlights of other expected development are examined in a new study, "Leased Line Modem Markets, published by Market Intelligence Research Company. The report analyzes the leased line and private line modem markets for 1984–1994 in terms of modems that transmit across telephone wires, fibre optic cable, coaxial cable, and by using radio waves. The largest market segment discussed is modems designed for trans-mission across leased lines provided by telcos.

High-speed leased line modems are experiencing the most growth, with annual revenues approaching one-half billion dollars. This report identifies which modem market is the strongest market segment. Additionally, this study provides a background of the modem industry, including major trends, applications and market factors.

Price: $1495. Contact: MIRC Europe, 55 rue Vandenhoven, 1200 Brussels, Belgium.

TOMCAT

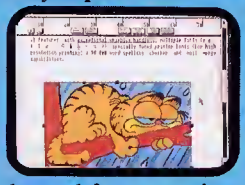
Tomcat by Players, places you in the cockpit of the powerful F14 Tomcat fighter. Reek havoc across 4 devastating ground firepower, destroy enemy tanks, ground installations, gun boats and helicopters. Each level culminates in a head to head confrontation with an awesome mechanoid adversary, players tell us. Available on C64, coming soon for the Amiga. Price:£11.99 for 8 bit versions, £14.95 for 16 bit versions. Contact: Mercury House, Calleva Park, Aldermaston, Berks. RG7 4QW, Tel: (07356) 77421.

KINDWORDS

Impressive reviews? They'll be lost for words when they see the new KindWords 2.0. It's still as easy to use as its famous predecessor but now boasts a new

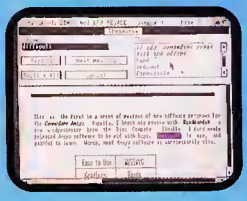
100,000 word English dictionary licensed from Collins, a 470,000 word thesaurus and automatic hyphenation.

So it knows the difference between 'colors' and 'colours' and how to use them. Because with KindWords you can easily import graphics into your text documents and produce professional documents that really impress.



As it was designed specifically for the Amiga, KindWords works with your computer, not against it. Pull down menus and full help facilities are used to the maximum advantages – so advanced features such as spell checking and mail merging are easily accomplished.

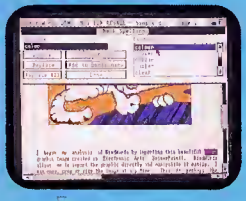
There's a new extensive font library which combines



with graphic editing facilities that make KindWords an extraordinary word processor at an unbelievable price.

Which only goes to prove that sometimes you should believe what you read in the press.

Existing KindWords users can upgrade their software for £14.95 inc VAT by calling 010 331 455 310 53 or write to Disc Company Europe, 1 rue du Dôme 75116, Paris, France. Visa, American Express accepted.



Dealers should call Amiga Centre 031-557 4242, GEM 0279-412441, HB Marketing 0895-444433 or Microdealer 0908-74000.

Price
£49.95
inc VAT.

THE DISC COMPANY

MORE KINDWORDS

"The excellent KindWords includes everthing you'd expect to see in an Amiga word processor with many extras."

ST Amiga Format

"KindWords is considerably cheaper than most Amiga word processors... its documentation is well produced and readable... contains quite a number of advance features... good value for money"

Amiga Computing

"KindWords is stylish and uncluttered... simple and elegant with a lot going for it... KindWords is a program written with care, everything about it shows consideration for the user."

Amiga User International

"I found KindWords both powerful and flexible... I think most users will be delighted with KindWords' logical design and power."

Commodore Magazine

"KindWords Superfonts produce attractive, high-quality printouts even from inexpensive dot-matrix printers."

Amiga World

Movie

Cartoon animators never had it so good... Peter Lee stops feeling Goofy and gets Happy with Gold Disk's new animation utility which might make even Grumpy smile!

The standard of animation programs for the Amiga has grown steadily, both in terms of results and complexity. It seemed that the only way to pack more power into a piece of software was at the expense of ease of use; friendliness took second place to features, and as results got better, the pain of achieving them rose proportionally. But MovieSetter, a new mid-price entry into the market from Gold Disk has broken the trend and introduced a full-feature push-button animation package. Its simplicity and ingenuity look set to establish it as a classic, easy to use entry point into this rewarding field..

All control is through the mouse, or via keyboard shortcuts, and in true WYSIWYG style, what you see on screen is exactly what you will get on playback. You can actually animate on screen, which is a great help towards cutting out time-wasting edits; it also lets you compose on the fly by displaying each frame the instant you make any amendments to it.

The package itself is of the usual Gold Disks quality; the program disk and a data disk containing IFF pictures, sounds and other useful animation aids, are unprotected. Instead, MovieSetter relies on a password entry technique which prevents access until a particular random word from the manual is typed in.

This is fine by me, because I would rather have to glance through s manual than be unable to make backup copies of the precious software. MovieSetter will work on a bare 512K Amiga system, but to get the most out of its features you certainly need at least 1 meg -otherwise you are dogged by the irritation of having to load each of the program's major features independently instead of having them memory-resident.

Users with 512K can trade off this inconvenience and load in MovieSetter pointless unless you are animating line drawings. They can get the full-blown features only if they load each section as needed. Still, lengthy animations can still be created even with this amount of memory. The program works on PAL mode, and can display full 32 colour IFF images on screen. It is split into three distinct tools : MoviePlayer, SceneEditor and SetEditor. MovieSetter is an integrated tool which contains this trio of utilities. The power and flexibility of MovieSetter is contained in the Scene Editor. It is here that you create your story, and breathe life into it by adding movement.

"The power and flexibility of MovieSetter is contained in the Scene Editor. It is here that you create your story, and breathe life into it by adding movement."

Apart from its ease of use, MovieSetter's major attraction has to be the ability to enable you to see your work progressing whilst you are creating it. Probably the first thing you will want to do is load in a background picture against which the action will take place. There are a number of art screens on the supplied data disk, but any IFF screen can be used, in either full video overscan (352 16 240) or the standard 320 16 200 resolution.

These backgrounds can appear in a variety of ways thanks to half a dozen snazzy transitions. And what's more, these backdrops can be scrolled either vertically or horizontally while the action is going on in the fore-

ground. It is difficult to over-emphasise the difference this little trick makes to a video presentation. Provided your background is designed with this in mind — with a seamless 'join' at the left-right or top-bottom edges -apparently seemingly endless street scene or vast tract of space can be simulated by scrolling one image repeatedly throughout an entire scene.

"The program plays back in anything from 60 frames to 1 frame per second, depending on how many colours you have on screen, and what is going on in your scene."

Setter

The next features you will want to add are the bits and pieces which will be animated. These can simply be static pictures — a cloud gliding by for instance — but why waste computing time on something so easy? The real benefit of using MovieSetter is that you can design a set of images, each slightly different from the last, which when sequenced through give the appearance of movement.

This is how they do cartoons in the movies (in films such as Who Framed Roger Rabbit); the program plays back in anything from 60 frames to 1 frame per second, depending on how many colours you have on screen, and what is going on in your scene, realistically with 32 colours you can expect around 10 frames per second, which although a pretty low rate, does give adequate and smooth results.

Controlling a set of images is done from within the Set Editor, an impressive utility which combines a full-feature art program and a pencil tester for scanning through images. You can create new images here, or load in and edit ones drawn with the likes of DPaint.

The set editor has eight built-in brushes including freehand. straight line, brushes, rectangle, and also has fill and oval drawing features, and a nice magnification option for touching up your artwork. Brushes can be defined then resized, rotated or flipped -which opens the way to some clever uses in terms of characters coming out of the screen and getting bigger, or a single character being flipped and re-used as an image moving within this editor, which incidentally boasts a cute film-strip border. You can call up a scrollable clipboard window where it is possible to store a number of brushes (or faces as they are called) before incorporating them into a set sequence.

Helping you make sure your animation cells will work out are a series of tools which act like a VCR in that they will take you to the start or end of a set of faces, flip singly backwards or forwards and preview the entire set by animating it. You can also edit the sequence, deleting single frames or moving the order around. And to make sure the animation is as smooth as possible, you can specify a registration mark on a cell to act as the reference point for the animation; MovieSetter also uses this as the hot spot in animations -the point in each cell which is used when plotting

"Pro's who cut their teeth on the likes of Aegis Animator, Deluxe Video and more recently Fantavision will be stunned at the power of MovieSetter."

movement. Some guesswork is still needed, but this feature gives you more of a fighting chance. Once complete, these cells can be incorporated into your animation; this is achieved through track editing, and it is the program's most elegant feature.

If you have a sequence of, say, six cells of a man running, his legs and arms moving slightly in each image, then building him into the script is just a matter of clicking the mouse button. You decide on his route across the background, and click the mouse; image one is registered, and amazingly the second image has become the mouse pointer, and you can move it around and click again, leaving the program to figure out the in-betweening.

Each time you move the graphic and press, the next drawing in the sequence becomes the current 'brush', and they cycle through all six until you have plotted his course across the screen.

And all the while, if specified, the background will scroll, and any other tracks containing different images will be showing their position on screen. This is such a constructive feature of the program that it is hard to think of a better way of doing it.

As an aid to editing, you can play your scene with the current track leaving behind latent images so you watch a face's history. This helps you plan out a new track to interact with this existing one. You even have the luxury of guides, which will snap and constrain your movement in a number of ways -horizontal, vertical and elliptical, with the ability to specify a starting velocity and acceleration factor. But, as Porky Pig might say, wait folks, th-th-that's not all... Because MovieSetter incorporates sounds too -in variable stereo.

The storyboard option allows you to review and edit any scene you've created.

Full stereo sound with panning. The results are incredible.

Place objects over backgrounds and position their travelling path by pushing a button. The program does all the integration and cycling for you.

There are a number of 'clunks' and 'ker-ploings' on the data disk in true cartoon mould, and these can be incorporated anywhere within the script as an event. Sounds of your own, provided they are in IFF format, can just as easily be loaded in and played on cue. Pitch and octave are both definable, and in addition two stereo or four mono sound FX can be played simultaneously. As far as post-production is concerned, the program is just as flexible and easy to use, allowing comprehensive editing at any time. Helping the process along is the storyboard, a sort of visual database of all the events which go to make up your animation.

The type of event to be displayed by the storyboard can range from a background change to the start of a new track. It is then a simple matter to enter the relevant frame and make any amendments. It is possible to save productions complete, with all sets and backgrounds in one vast file, and these can be distributed for playback to friends, or you can save your work just as small scripts, which will need all the parts of the animation available at the time of running. There is also total colour control, including colour cycling for pseudo animation.

CONCLUSION

This is one animation package which will appeal to experienced users and novices alike; pro's who cut their teeth on the likes of Aegis Animator, Deluxe Video and more recently Fantavision will be stunned at the power of MovieSetter, and newcomers to this fascinating and worthwhile presentation utility will be right at home because of its extremely friendly control methods. I had an animation up and running 10 minutes after scanning the manual. This is not to say I would consider MovieSetter in real competition with the heavy-duty professional video effects programs, simply because the resolution it uses is so low. But as far as home entertainment, office presentation and classroom work goes it is a time-saving and beautifully crafted utility which would be my first choice.

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StarBoard2

Increase your storage space - and make room for the future - with a new upgrade for the A500 tested by Peter Lee.

The upgrade path is a rocky one for computer owners; we need to have one eye on the bank balance, and the other on the future. Getting the newest add-on may bring short-term benefits, but with computer innovation leaping forward at a lightning pace, you have to leave the way open for potential improvements.

A case in point would be a peripheral which uses the expansion bus but does not have a pass-through connector. If all manufacturers thought like that, users would quickly reach a technological dead end. It is comforting, therefore, to come across a peripheral which is tailor-made for bigger and better things - the Starboard2 RAM expansion.

Produced by Texas-based MicroBotics Inc, the unit won many friends among the early core of Amiga 1000 users, and this same quality has been turned towards the A500 and A2000, giving A500 users in particular something that will lift their computer out of the games rut and allow the potential for some constructive professional applications.

The StarBoard2 is a solid, sturdy add-on which is about size and weight of a brick; it measures 27.5cm long, 11.5cm wide and stands 7cm high. Fitting neatly into the Amiga 500 expansion bus (under the snap-off cover on the left-hand edge), it matches the machine's casing colour. However, because it is so hefty, I found it advisable not to move the computer too much with the unit attached - otherwise the 500's edge connector could well be damaged.

The basic unit, which consists of a bare board ready to accept a megabyte of memory by the addition of 256K chips, can be bought for £199.95; with the chips added, the cost rises to £444.95 (with 512K additional memory, the cost is £324.95). With 2 megabytes installed, the price is £699.95; this necessitates the fitting of an upperdeck to the inside of the unit.

Compared with expansions that do not possess the added attractions of additional upgrades, the pricing is well structured considering the cost of RAM chips (currently £125 per half meg). The benefits of having additional RAM are self-evident - the extra money is vital for running much of the professional software available. Word processing, spreadsheets, art and animation packages thrive on greater capacity and operate more quickly and efficiently using a RAM drive. Also, professional and entertainment software is appearing that needs at least a megabyte to run.

Given that there are a number of memory expansions available, StarBoard2's outstanding feature is its facility to expand in a number of interesting and powerful ways. For example, the StarBoard2 has the capability to install a SCSI module, which then paves the way for adding units that conform to this industry-standard Small Computer System Interface (typically, a hard disk drive). The SCSI interface fits inside the casing and connects with the outside world (and the hard drive) via a 25-pin D-connector cable. Priced at £75, it is accompanied by a disk of excellent software for managing your drive, together with a neat piece of diagnostic software.

In addition to the interface, you also receive the bonus of a battery-backed clock and calendar; even when the Amiga is turned off, the time is still kept.

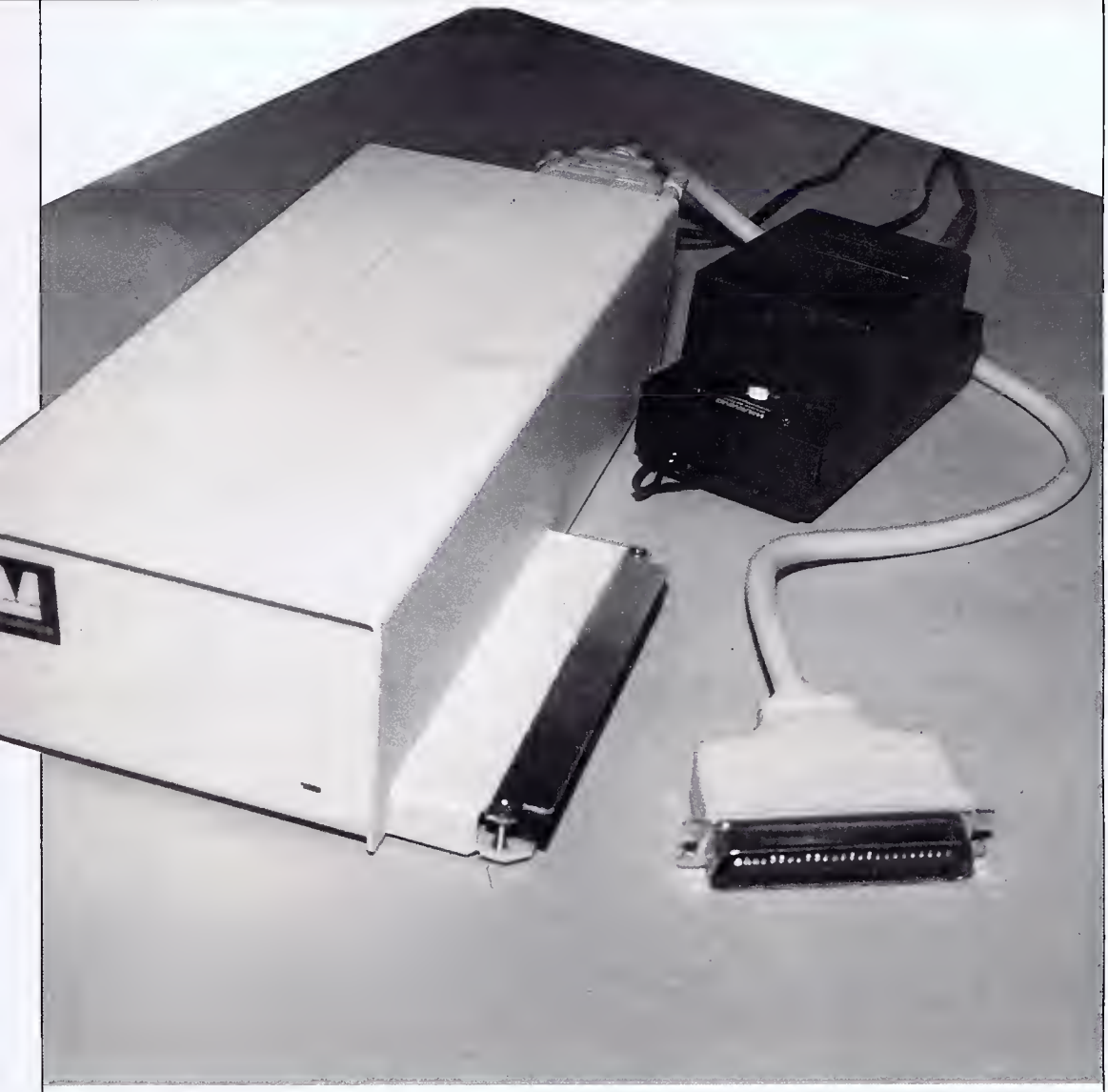
The actual manual for the SCSI is included as a Text.Ed file on disk, which is inconvenient for people wishing to get stuck in straight away. But the manual is thorough and unambiguous, which is a good thing where do-it-yourself electronics are concerned!

Even with 2 megabytes and a SCSI interface fitted, the StarBoard2 has room for more expansion. For £55 you can add a MultiFunction daughterboard. Its features include: a battery-backed clock; support for parity checked memory (which unfortunately requires the additional purchase of four 256K chips for each meg of memory installed); a socket and circuitry for the Motorola floating point unit (MC68881RC12A) for applications requiring fast maths functions - (the maths chip feature is supported in software via a set of IEEE double precision libraries); and a StickyDisk option - the ability to specify a fast RAM disk which will keep data intact even after a warm re-boot.

"If an error is detached by a comparison between the memory-resident data and the saved data, a recoverable Guru will be flashed for you to take appropriate action."

As far as the parity checking memory is concerned, this feature would be of most use to people dealing with large amounts of data. If an error is detached by a comparison between the memory-resident data and the saved data, a recoverable Guru will be flashed for you to take appropriate action.

The maths chip itself has to be purchased separately, and at £115 it is a luxury you will have to justify. The chip sits quietly on the board until called by a piece of software. At that time, its 12.5 MHz power will be transparantly brought in to speed up number crunching.



The StarBoard2 features a bus pass-through, which emerges on the top. The pass-through is a novel idea that prevents the computer set-up getting too wide for the desk. Up to two StarBoard2s can be linked to the A500, and because the power comes from an independent 9v supply, there is no need to worry about too big a drain from the Amiga itself.

The unit tested was installed on an A500, but A1000 users can also purchase a StarBoard2 module, which is powered by the computer itself. The expansion paths outlined above are all relevant for both machines.

CONCLUSION

The arrival from America of the StarBoard2 for the Amiga 500 should give owners of the computer a whole new outlook on life. It will enable serious users to have access to the wealth of top-quality, memory-hungry software which exists, and at the same time open the door to the world of hard disk storage. The unit is sturdy and robust, though I would hesitate to recommend the fitting of interior boards or RAM chips unless you have some experience - one flash of static can cause serious damage. The price may seem high, but it compares favourably with other expansions that do not have the same potential. If bigger and better is your aim in computing, then StarBoard2 deserves your attention.

Contact: Oasis Services Ltd., 17 Andrew's Place, Eltham, London SE9. Tel. 01-859-4936

MIDI

Paul Andreas Overaa continues his series on Midi and the Amiga

The Amiga's serial device is capable of directly supporting the reception and transmission of serial data at 31.25 KBaud so with a suitable MIDI interface connected to the RS232 port it is not too difficult to get some sort of programmed MIDI link up and running. Here is a brief rundown on the conventional way to set up the serial device followed by some extra details you may need as far as MIDI data goes...

To use the Amiga's serial device you need to create a 'reply port'. This port is used by the serial device to send your program information and its creation involves a straightforward call to the CreatePort() function. If the CreatePort() function fails it will return a NULL pointer – so some check should be incorporated in the code to ensure that no problems have occurred. Here's some typical code...

```
if((g_reply_port_p=(struct Port *)
CreatePort(SERIALNAME,0))==NULL)
{error_flag=NULL;}
```

SERIALNAME is a pointer to a null terminated string. In this case I have used a macro, but CreatePort("Port Name",0) etc., would have done the same job. The variable 'g__reply__port __p' would have been defined as a pointer to a 'Port' structure... so the (structPort*) casting is just to keep the compiler happy.

The second thing to do is to create a serial request block so that your program can send the serial device details of the operations to be performed. Here's the arrangement of the request block shown as the C structure defined in the serial.h header file...

```
struct IOExtSer     {
            struct    IOStdReq IOSer;
 *       STRUCT    MsgNode
 *         APTR      Succ
 *         APTR      Pred
 *         UBYTE     Type
 *         UBYTE     Pri
 *         APTR      Name
 *         APTR      ReplyPort
 *         UWORD     MNLength
 *       STRUCT IOExt
 *         APTR      io_Device
 *         APTR      io_Unit
 *         UWORD     io_Command
 *         UBYTE     io_Flags
 *         UBYTE     io_Error
 *       STRUCT IOStdExt
 *         ULONG     io_Actual
 *         ULONG     io_Length
 *         APTR      io_Data
 *         ULONG     io_offset
 *
            ULONG     io_CtlChar;
            ULONG     io_RBufLen;   /* length of serial buffer */
            ULONG     io_ExtFlags;  /* flag extension area */
            ULONG     io_Baud;      /* requested Baud rate */
            ULONG     io_BreakTime; /* break signal duration */
            struct    IOTermArray io_TermArray;
            UBYTE     io_ReadLen;
            UBYTE     io_WriteLen;
            UBYTE     io_StopBits;
            UBYTE     io_SerFlags;
            UWORD     io_Status;
    };
```

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WIDTH	132 Col						●
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FEED	Tractor	●	●	●	●	●	●
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With nine out of ten coin-op conversions being ported from the ST versions, it is left up to the producers of "original" games to exploit the extra hardware the Amiga possesses. Rainbow Arts have proved themselves at this in the past with Jinks and Great Giana Sisters, but their latest, Denaris surpasses all previous efforts and emerges as the best shoot 'em up yet to appear on the Amiga.

Almost as soon as the game begins, your first bolt-on upgrade icon drifts its way across the screen. Pick it up and the equipment homes in on the front of your ship, forming a shield against head-on flak. You can also use it to clear the way ahead by shooting it off the entrance to the space cruiser and a second icon comes your way. This time you get the benefit of diagonal-firing reflective lasers, essential for surviving the many surprise attacks from above.

"Unlike so many other shoot 'em ups, the difficulty level has been set just right, allowing a little progress with each game."

After the destruction of the first mothership you beam down to a ragged planet surface. Here the aliens shift up a gear and start appearing in overwhelming droves. A little further on the scenery begins to close in, restricting your movement further still. With each level the aliens get faster, bigger and more numerous. Unlike so many other shoot 'em ups, the difficulty level has been set just right, allowing a little progress with each game.

"Clearly a lot of thought has gone into the attack waves, which although remaining identical from one game to another, always manage to keep you on your toes."

Sound and graphics match the standard set by the gameplay. The loading music is a cut above the usual looped sample, and the effects consist of various loud zaps, warps, ricochets and rumbles. All the graphics are perfectly smooth, and among the typical metallic aliens there are some excellent sprites with a satisfying habit of exploding into white hot fireballs.

To call it original would be stretching the truth to breaking point, but with Menace as the only other horizontally scrolling progressive zapper of any note, who's complaining? Clearly a lot of thought has gone into the attack waves, which although remaining identical from one game to another, always manage to keep you on your toes. Xenon was brilliant but too hard, and Menace was a little too easy at times. Denaris has all the best points of both and more. We shall have to hang on to see if Activision can top it with R-Type, but they must come up with something awesome to beat this! Grab a copy now and see what your Amiga can really do!

T.H.

Denaris

Denaris
Denaris

US Gold

Graphics: 9
Sound: 9
Playability 9
Value: 8
Price: £19.95

Teenage Queen

Infogrames

You may think Anco have the strip poker market sewn up with their never ending series, which is, we hear, exciting an international audience. But, it seems, Infogrames have other ideas.

Teenage Queen is played in exactly the same way as most existing strip poker games, even down to the layout of the option icons. The computer deals both you and your sexy opponent a hand of five cards. Good hands are frequent as the lowest card in this pack is a seven. You both begin with 100 credits. Once you get the girl's balance below zero she takes off an item of clothing in exchange for some cash. A very flirtatious and sexy teenager, at first you think she's just teasing but she strips off completely if you keep up a winning streak. And she goes a lot further than Maria Whitaker!

"A very flirtatious and sexy teenager, at first you think she's just teasing but she strips off completely if you keep up a winning streak."

Although the graphics are not digitised, they are at least as good as those often indistinct images of some existing strip poker games. Occasional sampled giggles, moans and snatches of speech (mostly in French) have been thrown in for added realism.

Your opponent starts as a fairly good player, but nearer the end of the game she gets a lot tougher to beat. And it may take you quite a while, and some percentage play to "beat the pants off her"!

Just like the rest, Teenage Queen is very addictive to begin with, and there are a lot more than the usual five or six pictures to get through. Once you have finished the game a lot of that pull is lost, but it looks as if future data disks are the cards. There is one big surprise, right at the end, that I won't reveal. I'll only say "Toutes ne sont pas qu'ils semblent" (I think that means 'Everything isn't what it seems' but my French is improving only slowly with the help of this little teaser).

Teenage Queen is definitely one of the best games of its kind, but compared to Anco's versions it does look a little overpriced.

T.H.

Graphics: 8
Sound: 7
Playability: 7
Value: 7
Price: £19.95

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Amiga Answers

More Amiga Answers from Yuri Large, the Amiga User Group's Technical Whizz-Kid.

Dear AUI
I have a big problem with my A500. Sometimes, when I boot some of my software, my Amiga checks the disk for a while as if reading something, and then the hand with the Workbench disk comes back on the screen. Then, I have to turn my Amiga off and wait a few minutes before trying again, either successfully or not, to re-boot. I am sure that my software is good - good boot block and DOS. I do not have a memory upgrade, or a clock. Is this a new virus?! Does it jam up the boot block or the kernal? Or perhaps my A500 has a hardware problem.
ALAIN PIEDNOEL
BARNEVILLE-CARTERET,
FRANCE

Dear Alain,
Usually the Amiga behaves in this fashion because the disk you are using has either an invalid or a corrupt boot block. The boot block of a disk, as you probably know, is on track 0. The data contained here must be in a certain format for the disk to be bootable. In some cases, a disk's boot block can be such that the Amiga will start to read it and then reject it. This sounds like what is happening to you.

However, you mention that your problem is intermittent. In this case, it is more likely that your hardware is at fault. You might invest in a disk head cleaner which should be available from your usual computer shop for around about £8. This should remove any dirt from your disk drive's head which may be causing it to read incorrectly. If this does not solve your problem, your Amiga may well need repairing.

I do not know of any viruses that cause the kind of problems that you have been experiencing.

Dear AUI,
In October last year I upgraded from a C64 to an Amiga 500. I am very satisfied with it, but I have a few questions.
1. I bought a Star LC-10 colour printer to go with the Amiga. Some of the programs I have do not have the Epson JX-80 specified in their Preferences. Can I put it onto the disk from the Preferences on the Workbench? If so, how?
2. I also have an Apple IIe with an Imagewriter II. On the Workbench Preferences this printer is available, but I can't hook it up to the Amiga as the serial port on the Amiga and the cable from the Imagewriter II both have pins. I know it is a serial printer because to hook it up to the Apple we have a Super Serial card. What do I need to hook it up, an interface, a cable, an adaptor, or do I just plug it into the parallel port? When I called Apple in Germany they wanted DM120 (roughly £35) to look at my Amiga to answer this question.
3. What external disk drive is in your opinion the best?
Best regards.
FREDRIC NEWBERG,
DUSSELDORF, WEST GERMANY

Dear Fredric,
1.When you select a printer from Preferences for your use, all that you are really doing is telling the Amiga which printer driver to use when printing. All the printer drivers that the Amiga can use when using a particular disk are stored in that disk's "printers" directory. This directory can be found in the "devs" directory of any bootable disk, i.e. it is two levels down in the directory tree. Therefore, all that you need do is copy the "EpsonJX-80" printer driver from your Workbench disk onto the disk that you wish to print from. In order to do this using a one drive system you must first set up a RAM disk from which to run the CLI commands. This procedure is quite complicated, but if you want to do it I would suggest that you first get a good grounding in the use of the CLI.
An easier solution, and one that will cause less confusion, is to boot from your Workbench disk when you want to print, and then run the appropriate program from there. This will allow you to use the "EpsonJX-80" driver, which will be selected because you are using your Workbench disk system-configuration.
2. You should be able to connect your printer directly to the Amiga's serial port via an appropriate cable. To obtain this cable just contact a good computer dealer with the details of the Amiga's and the Imagewriter II's serial port pin-outs. They should then be able to make you a lead very easily. In fact, you will probably find that all that is required is a standard lead for connecting an Amiga to a RS232 device.
3. Most of the drives available in the UK are made by British companies and I do not think that they are readily available in Germany. However, I can recommend the Commodore A1010 3.5 inch external drive, which I am certain will be available in Germany. I myself have used one for over two years and have had no difficulties.

Dear AUI,
I'd really like to get involved with modems, and would appreciate some help. I have an Amiga 500 with a ram pack, and two disk drives. Firstly, is the GEC Datachat modem "free" with a Micronet subscription worth the eighty quid? Is it any good, or would I be better getting a cheapish modem from elsewhere? I am interested in Micronet however, so would I be able to subscribe without getting their modem!!?
This is the biggie! I've got absolutely no knowledge of programming. I don't know a chip from a potato. Should I like modemming, the prospect of a bulletin board sounds wonderful. What exactly would I need to set up my own bulletin board, and would I need programming skills? What are hard disks for, and could you recommend any?
As you can see, I don't know a lot -and if a game doesn't auto-boot, I'm really up the creek!!! Any and all advice would be invaluable.
Thanks
MAT EDMUNDS, PETERBOROUGH

Dear Mat,
Most of the modems supplied free with subscriptions to commercial systems are, as you would imagine, cheap and cheerful. Usually they will only support the data transmission rate required to use the system you are subscribing to. Consequently you may find yourself to be restricted in the use you can make of the modem. In this case, you may find that a greater initial investment will be beneficial. Not only will it give you the ability to use a wider variety of bulletin board systems, it may also provide you with faster communications, thus saving you pounds on your phone bill. In most cases, you will find that the modem you buy will still allow you to connect to Micronet. However, if this is your main purpose in buying a modem, check first!
In order to set up your own BBS all you will need is a modem that will auto-answer, some software, a phone line and, of course, your Amiga.There are two packages available for the Amiga that will allow you to do this.

One is Public Domain and is called Tag-BBS. This is not easy to set up and the documentation is not terribly good. I would recommend that you use BBS-PC! from Micro Systems Software, the same people that produced Scribble! BBS-PC! is a very comprehensive package and it should set you on the road to becoming one of that rare breed; a sysop!
A hard disk is like a great big floppy disk. Hard disks vary in size from 10 megabytes upwards and they allow much faster access to the data that they contain than floppy disks. An Amiga Floppy disk can hold approximately 1 megabyte of data. So, you can imagine what an improvement a hard disk can be to a system, especially when one is using large amounts of data. For instance, you might be running a BBS!.

Dear AUI,
I have been an Amiga owner now for about four months and have been extremely pleased with it. I had been reading your magazine for about 3 months before I actually bought my Amiga and have bought every copy of your magazine ever since.
I have one small problem which is annoying me. I would like to use a picture I have drawn, using DPaint, as a loading screen for some of my programs, but I have failed miserably. Can you please tell me how I can use a DPaint picture and a Sonix file together, independently from their main program. I have been trying to work this out for ages, I have consulted an Amiga DOS manual, the DPaint literature but to no avail. I'll be extremely grateful if you could help me out. I enjoy reading your magazine, which is easily the best around for the Amiga (even if it is £1.95). I think you should have more competitions in your magazine.
Yours faithfully,
MASUD KHAN, COVENTRY

Dear Masud,
The easiest way to display a DPaint picture and play a Sonix tune at the same time is to use "Lights, Cameras, Action!", which is a program produced by Aegis. This program allows you to create a slideshow of IFF pictures while playing a Sonix score. To link this with your programs you will need to use the player program provided with "Lights, Cameras, Action!".

Dear AUI,
I have recently purchased an Amiga 500 and an NEC Pinwriter P2200 printer and although I am delighted with them both, I have had a couple of problems when outputting my work to the printer.
I have been experimenting with the notepad on Workbench and although I can display many different fonts on screen, when I print them out, they revert to the standard plain font. I appreciate that Notepad is a very basic program and that the P2200 is not listed as an alternative printer in Preferences (I use the Epson option), but can I expect to be able to use all the fonts available in a package such as WordPerfect which I intend to buy in the near future?
My second problem is that when I try to print out my creations on Deluxe Music, I can only achieve a copy in draft and not in letter quality, this also happens when using Deluxe Paint. I look forward to your comments.
Yours faithfully,
P. FRETWELL, SHEFFIELD

Dear Mr Fretwell,
When printing using any dot matrix printer, there are two ways that the computer can send data for printing. The first is to send numbers corresponding to ASCII codes, which the printer then prints as the letter represented by that code. For instance, using this method, if the number 84 was sent to the printer the letter T would be printed. The font which is used to print is determined by the printer. All dot-matrix printers have at least one font installed in a ROM chip, and some have more. Therefore, when printing using this text mode, you can only use the fonts that your printer already has.
The other method of sending data is to do it line by line and dot by dot. This as you can imagine is slower, but as you probably already know it does allow you to print pictures or graphics. Using this graphics mode, the Amiga can print the Amiga fonts. Using Notepad you have the choice of which printing mode to use. It is selected from the "Print As" option on the Project menu of Notepad. There are two options: "graphic" prints using your printers graphic mode and allows you to produce the fancy Amiga fonts: and "Draft" uses your printers in built fonts which you can usually select via the printer.
Now onto your printer, the NEC P2200. As you mention, using Workbench 1.2, there is no printer driver for your printer or for that matter any other 24-pin printer. This is because 1.2 does not support 24-pin printers. The closest there is, is the "Epson" driver which you are already using. This when used to print graphic output will probably look like "draft" quality. In reality what it is happenning, is that your printer is only being driven in 9-pin mode, therfore not taking advantage of your printers full resolution (i.e. 24-pins) and as such the quality will probably not be to your liking. However, do not panic, as you will have heard Workbench 1.3 does support 240pin printers. There is even a driver for the NEC Pinwriter Series, of which your printer is a member.
With reference to your printer and Word Perfect, you will find that WP only allows you to print using your printers in built fonts. This is because it uses the text mode to print, and therefore does not support the Amiga's fancy fonts. However, WP will allow you to use all of your printer's features, and you will probably find that the results achieved that way are of far better quality than anything produced using graphics mode. If you do want to use the fancy fonts try one of the WYSIWYG word processors available for the Amiga. such as ProWrite, Kindwords or VizaWrite.

Dear AUI,
I am having problems interfacing with my wife. But more. importantly I am having problems interfacing my STAR SR 10 PRINTER (centronics parallel) to my Amiga 1000. The problem appears to be with the way I am wiring the plugs.
I would also be grateful if you could also recommend a "printer driver" for the same.
Could you clear the point up with respect to pin 23 on the Amiga 1000 and pin 1 on the printer. The way I read it is I could do damage if I use an IBM printer lead, which would connect these two. This would feed +5V from pin 23 (Amiga) to ground at the printers pin 18.
I look forward to your reply.
Yours faithfully,
R. ROSCOE, RUNCORN

Dear Mr. Roscoe,
Rather than take any risks, I would suggest that you contact the UKAUG on 0533-550993. They will be able to supply you with the lead that you require. You should not use an ordinary IBM printer lead as this will indeed cause a small bang. An IBM printer lead will be the wrong gender in any case. Pin 23 on the Amiga 1000 is a +5V line. When the Amiga 1000 series was designed there was talk of using this +5V to power external peripherals, but very few people ever did use it. In fact, this idea was dropped in the design of the Amiga 500 and 2000.
Unfortunately, there is no specific driver for your printer either supplied by Commodore or, to my knowledge, in the public domain. However, the trusty "Epson" driver should supply the appropriate codes for your printer.

Dear AUI,
I consider myself a reasonable Basic programmer, with a smattering of knowledge about files and operating systems from working with

mainframes and minis (in fact the Amiga is far more powerful than the first mainframe I worked with - which shows my age!) but to get the most out of the Amiga operating system and excellent Basic supplied with it I soon needed support and advice - but where to turn to?

When working with the C64 I had had plenty of magazines giving help and advice on programming with listings of games, utilities, useful routines and hints and tips. In fact plenty to keep me busy, so naturally the Amiga magazines would be of similar help - how wrong could I be?

So much for the criticisms - now for the constructive bits - I have at last obtained some excellent books on Amiga Basic, they are at last appearing on the bookshop shelves. For anyone familiar with Basic the more powerful features of Amiga Basic are explored in the Compute! book "Advanced Amiga Basic" with plenty of ideas to provide starting points for further programming. Although Amiga Basic may not be as powerful a language as C and ML a lot can be done with it and an excellent feature is the ability to extend the language even further through its ability to call the Amiga Library Routines. This facility is explored in the Abacus book "Tricks and Tips" which provides many powerful routines which may be incorporated into Basic programs opening up a whole new field of Basic programming and obviating a lot of its drawbacks. A third, more specialised book is Compute!'s "Inside Amiga Graphics" which covers C, ML and Basic.

The Amiga is the best computer in its class - it deserves the best support.

I live in hope.....

ROD PILLING

Dear Rod,

Thank you for your comments. I would like to agree with your book recommendations and also add Abacus's "Amiga Basic Inside and Out" to your list. Also, I would suggest that you take a look at Andy Jenkinson's Amiga Basic column in the UKAUG's bimonthly newsletter. In this column, Amiga Basic is covered in a mature manner with some good discussion of the finer points of this fine language.

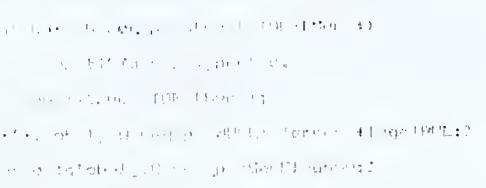
Don't forget that just because it's free doesn't mean that it is rubbish. In this case, that couldn't be much further from the truth.

MIDI

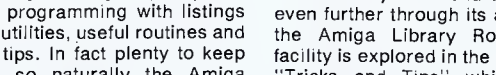
continued from page 16

The fields shown as remarks are given to help appreciate the involvement of the Exec's 'IOStdReq' structure but most of the fields will not be used directly and can be effectively ignored.

To create a request block we use the CreateExtIO() function. It takes two parameters – the address of the previously opened message port and the size of the request block.

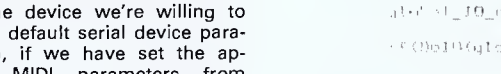


We include the usual checks for errors and, if the function provides a valid pointer to a IOExtSer structure we are in a position to actually open the device. During the 'open' the serial device pays attention to only the shared/exclusive access flag and the 'seven wire flag' (enables the RS232 DTR/DSR/RTS/CTS handshaking protocol). Any other flags are ignored but it is recommended that other bits should be set to zero. By setting the serial flags field of this block to zero we tell the device we're willing to accept the default serial device parameters so, if we have set the appropriate MIDI parameters from Preferences, we shall find that the serial device is automatically configured for MIDI as we open it using OpenDevice() like this...



When the Amiga is multi-tasking, or when very high MIDI throughputs are envisaged, it is possible for MIDI data to be lost under this arrangement. The reception of system exclusive data is a typical example of a high throughput area. It is not uncommon for these data blocks to contain 5-10K bytes of data and this data will be sent without the 'quiet gaps' that keyboard generated MIDI data usually has.

There are some extra steps that can be taken to minimize this risk of data loss under these circumstances. You can disable parity checking, eliminate break signal checking and by-pass the XON/XOFF handling thereby generally increasing the performance of the serial device. Surprisingly enough it is very easy to do – you just set the the SERF__RAD__BOOGIE flag in the 'IO__SerFlags' field and issue a 'Set Parameters' command to the serial device, like this...

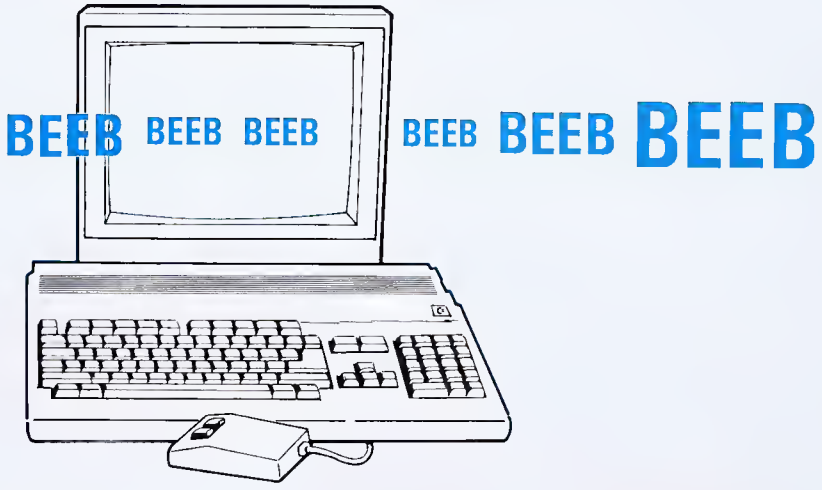


The DoIO() call uses the data available in the serial request block to perform an I/O request. Since we asked the device to set the device parameters, and since we had set the SERF__RAD_BOOGIE FLAG IN THE 'SerFlags' field, the DoIO() call will in this case initialize the 'high speed' serial mode characteristics that we mentioned earlier.

Access to the serial device is via a collection of standard device-access calls coupled with some additional device specific functions and it is these that we shall look at in detail next month.

P.O.A.

Now the Amiga makes a new noise.



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Commodore

PURPLE SATURN DAY

Infogrames

From the creators of Captain Blood comes Purple Saturn Day, a wierd kind of sci-fi Summer Games.

Every Saturn year, the Purple Saturn Day Games are held. (You mean you didn't know?) Together with you, seven other species are paired to make four teams. (Now, you remember!) Three rounds of four events are played as a knockout competition, the winner of which gets to be on the receiving end of a sloppy kiss from the rather tasty Saturn Day Queen (and that's not all, going by the accompanying sampled moans of pleasure!). The events can be practiced or played for real in any order.

Saturn's ring of asteroids is the venue for our first game. Ring pursuit is a race between two competitors around Saturn's encircling asteroid belt.The course is marked by wrecks of spaceships coloured alternately red and yellow to form a slalom. Colliding with an asteroid brings your ship to a bone-jarring halt, but maintaining a high speed is essential if you

are to beat your computer-controlled opponent. Points are scored by keeping ahead of your opponent and by passing the markers on the correct sides. However, taking a wrong route through the markers whilst leading adds to your opponent's score. Some very smooth and

"Turning at 90 and 180 degree angles can be confusing at first, but thanks to the long-range scanner you get the hang of it soon."

speedy 3D graphics take care of the 3D.

Tronic slider is the next one-on-one challenge. It is played on a flat square surface suspended in the blackness above Saturn, and starts with an energy ball being shot into the arena.Each player pilots his own slider armed with a gun for disrupting the ball. Shoot it and it shatters into small fragments to be scooped up by the sliders. Turning at 90 and 180 degree angles can be confusing at first,but thanks to the long-range scanner you get the

hang of it soon enough. Again the 3D is very slick and there's a satisfyingly squidgy sound effect as you collect the fragments.

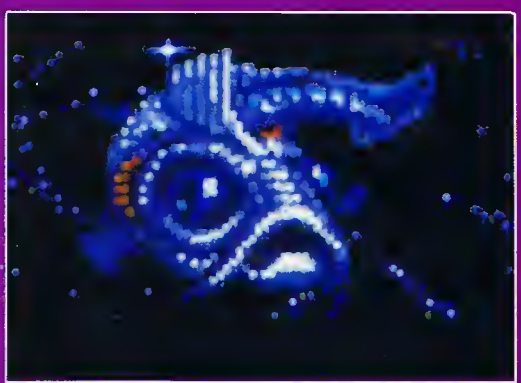
Brain bowler takes you away from the high speed thrills of the first couple of games. The idea is to re-activate your side of a brain

before your opponent does the same to his. A number of electrical charges buzz their way around a circuit, repelled and obstructed by switches, chips and the like. You control an erratic electro-ball, used to open and close switches and generally give the charges a helping hand through the maze of obstructions. This is a strange addition to what is otherwise a fast-paced arcade game. For me it is definitely the game's weak link.

The time jump uses a gravity catapult to send you on a trip through space, accelerating through the speed of light and into another dimension. To pull of this feat you need to catch a sufficient number of energy sparks that are shot before you. The more you catch the further you go into that fourth dimension.

Throughout the game the dreamy graphics are liberally sprinkled with details that give an extremely professional look to the whole thing. Sound is used well; the intro music is nothing special but the variety of gurgling and zapping effects can be very helpful.

Ring pursuit, tronic slider and time jump are all extremely attractively presented and provide some simple but challenging fun. Brain bowler on the other hand is the black sheep of the quartet, and while I can see it appealing to some, it tends to break up the flow of the game.There are a lot of good ideas in Purple Saturn Day and the scenario makes a welcome change from saving the world, or rescuing your girl friend. What is there is very good, but with a little more development, perhaps a couple of additional games (in PSD.II?) Purple Saturn Day could have really made it big. Nevertheless, recommended to everyone who wants a real exciting 'Tronnish' feeling game.



T.H.

Graphics: 9
Sound: 8
Playability: 7
Value: 7
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MENTOR

TO THE RESCUE Part II

The previous installment of this series gave general information about the way data is stored on the disks. This time Betty Clay presents the specific layout of the directory blocks, and the use of a disk editor.

The Amiga has several kinds of blocks (sectors), each with a slightly different format. Each block on a floppy contains 512 bytes, divided into "long words" which contain four bytes each. If you examine a diskette carefully, you will probably find several kinds of blocks that are undocumented, but five types are described in the ROM Kernal Manual: Root Block, User Directory Block, File Header Block, File List Block, and Data Block. One important type of undefined block is the Boot Block.

All of these blocks have a common structure in the first six longwords (fields), though some are null in some blocks, and those that are used might have a different meaning in a different kind of block. While there is much similarity, it will easier to follow if each type is presented separately.

Directory Blocks

A directory block could be divided into three major parts: the six words of header information in fields 0-5, the 72-word hash table in fields 6-77, and the information about the directory itself in fields 78-127. These are placed in the block in that order.

There are two kinds of directory blocks: the root block, and the user directory blocks. The root block is always sector 880 on these floppies; on a hard disk it would be the sector in the middle of the disk or partition. There are very few differences in the layout of the root directory and user directory blocks, so I shall treat them together, making note of the differences as we come to them. Here are the first six fields from a typical root directory:

00000002 — *the type of block (short — only one block in the file)*
00000000 — *header key (zero for the root; number of this sector in user directories)*
00000000 — *highest sequential number — always zero, since directories can be only a single block long*
00000048 — *hash table size (4 * 16 + 8 = 72 entries)*
00000000 — *not used for either directory block*
A45D4A26 — *checksum, used to make sure data isn't corrupted*

Following these six words, there will be the hash table, in which there can be no more than 71 entries, as noted above. Hash tables are an interesting topic in themselves. The use of hash tables makes the Amiga drive incredibly fast at loading a file when the name and path are known — but dreadfully slow at displaying directories.

Hashing means using a mathematical algorithm to change words to numbers so that every possible word will have a numerical value within a certain range. In the case of the Amiga, that range must currently be between six and seventy-two, inclusive, because that is the size of the hash table into which the words will be stored. Each filename you select is put through this hashing process, assigned a number between six and seventy-two, and then the number of the file's header block is stored in the directory in the slot whose number corresponds to the hash value. Suppose, for instance, that you called a file "File4" and that its hash value was 13. Then suppose further that File4 is to be started at sector 887. For this file, the 13th longword in the directory block would contain the number 887.

There is a need for caution in using hash values. Sometimes different file names will have the same hash value. It is this property that permits us to have large numbers of files on a disk. If AmigaDOS starts to write a file key into a slot and finds the slot already filled, it moves to the header of the file already occupying the slot, and adds its new block number to a particular field in that file's header block. This is called "adding it to the hash chain." Thus, you can have many files whose names give the same hash value. Any editor should show you the name of the file on which you are working; check carefully before making any changes.

After the hash table, there are these fields:

Word #78-123 — **bit map flag — to indicate if the bitmap is valid.**
Words #79-95 — **pointers to the blocks that hold bitmaps. For floppy disks, only one bitmap block is used.**
Words #96-98 — **date and time at which the disk was last altered**
Words #99-120 — **Name of the disk**
Word # 121 — **the date the disk was created**
Word #122-123 — **the time of day the disk was created**
Word #124 — **next entry on the hash chain. (Always zero for the root, but holds the key to the next file with the same hash value for user directories.)**
Word #125 — **back pointer to the parent directory. Zero for the root.**
Word #126 — **Extension block number — not used for directories, so zero.**
Word #127 — **Secondary type. 1 for the root, 2 for a user directory.**

Most disk editors will let you type in ASCII when correcting things like disk names. Some will permit you to

TO THE RESCUE

Part II

choose between decimal and hexadecimal numbers. I am using decimal numbers in this article except when copying hexadecimal items from the diskette.

The date is an interesting item. The date is held as the number of days since January 1, 1978. Probably that was a significant date in the life of the BCPL or TRIPOS from which we received AmigaDOS. If you want to change the date manually, and if your editor does not permit editing in ASCII, you will need to know how many days have passed since that date!

Editing the Directory Blocks

Have you ever had a known file that was preventing your disk from working? If you could be rid of that file, the rest of the disk would be recovered. There are several ways to find the file. If it can be listed in a directory, you can use the LIST keyword to locate the file on the disk. I'm using a disk with a directory called "Hermit". When I type LIST DFØ:HERMIT KEYS NODATES, this is what I see:

3.vdk: > list dfØ:hermit keys
Directory "dfØ:hermit" on Wednesday 23-Nov-88

CYCLER	**[1321]**	**8776**	**----rwed**
HERMiT.info	**[1323]**	**8664**	**----rwed**
.info	**[1325]**	**32**	**----rwed**
HERMiT.doc	**[1327]**	**5443**	**----rwed**
HERMiT	**[1329]**	**15712**	**----rwed**
CYCLER.doc	**[1331]**	**2327**	**----rwed**
LAND.pic	**[1333]**	**26942**	**----rwed**
LAND.pic.info	**[1335]**	**454**	**----rwed**

8 files — 152 blocks used

The word "Keys" requests the LIST command to show you the number of the first block in each file on the disk. The numbers inside the brackets are the sectors in which the files begin. With such a list, each file is located, and editing is easy. If a file, say HERMiT.info, were giving me trouble, I could list the root directory to find where the "hermit" directory is located. By finding the hash value of "Hermit.info", the slot in which the 1323 is stored would be pinpointed. Just replace the numbers there with zeros, and the offending file will be removed. A file in a user-directory is handled in exactly the same way, but you must locate the sector containing that directory first. Your can find it in the same ways — with a LIST or by hashing it.

For a terribly important file, you might even take the time to look through the blocks to find the header of a missing file. Just have the editor move from block to block until you find it. Then, note the block number, and find the hash value of your file's name. Go back to the root block and type the block number into the slot corresponding to the hash value, and your file is rescued.

Next time, we will discuss the other types of blocks, and more about using disk editors.

B.C.

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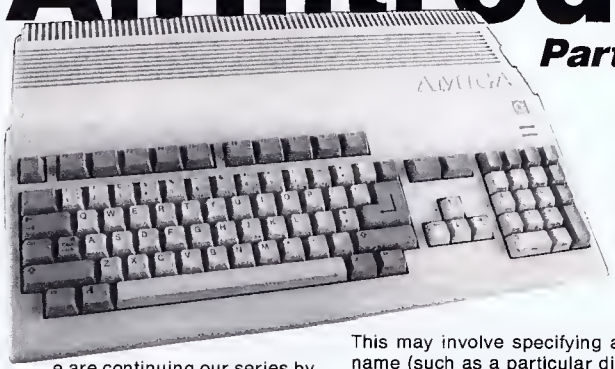
THE AMIGA An Introduction

Part II



We are continuing our series by looking at AmigaDOS, the Amiga's operating system. We mentioned last month that, by opening a CLI window, it is possible for the Amiga user to obtain a direct "command driver interface" link to the operating system. We also pointed out that this is not without some disadvantages for the beginner, since not only must the commands themselves be learned but also the correct syntax for each command (i.e. the proper way in which the command, and any necessary paramaters, need to be typed in order for it to be understood by AmigaDOS). Most of the commands make little sense unless you understand, in general terms, how AmigaDOS files are organized and what conventions are used for naming and locating them. This month we are going to start to look at some of the things that you should know about in order to use the CLI/AmigaDOS commands effectively.

A file is the smallest named object used by AmigaDOS and is primarily identified by its 'filename', which can be up to 30 characters long. Filenames may be enclosed within double quotes although you do not usually need to do this unless you choose to include those 'non-alphanumeric' printable characters (such as space, +, =) that are liable to confuse AmigaDOS. Only two printable characters are expressly forbidden in filenames.... the slash (/) and the colon (:).

To uniquely identify a file AmigaDOS will usually expect you to specify not only its name but its location as well. This may involve specifying a device name (such as a particular disk drive or a ram disk) and/or a 'search pathway'. Let's deal with the device name first; AmigaDOS recognizes various physical devices including up to four 3½" disk drives (identified as DF0:, DF1:, DF2: and DF3:), and a hard disk (identified as DH0:). It recognizes serial and parallel ports (named SER: and PAR:) and a 'ram disk' device. A separate printer device (called PRT:) is also supported and the characteristics of this device will be those selected by the 'Preferences' program mentioned last month. PRT: is used to send data to a printer and using this (rather than SER: or PAR:) enables program output to be automatically switched between the serial port and the parallel port according to the user's choice of printer options under preferences. Other devices, such as those called RAW:, CON:, NIL:, are also supported but are not particularly relevant to the present discussion.

Occasionally it is more convenient to be able to specify a particular disk rather than just a drive name and AmigaDOS allows you to do this if you so wish. When a disk is initialized it is given a unique name, called its 'volume name', and you can gain access to any file on the disk by using this 'volume name' instead of the device name. If the disk specified is not present in one of the drives AmigaDOS will prompt you to insert it before continuing.

AmigaDOS also supports a variety of 'logical' devices and uses these devices to find various files that your program might occasionally need. Here's some common ones you will come across in the literature....

SYS: The System disk root directory
C: The Commands directory
L: The Library directory
S: The Sequence library

Such logical device names enable programs to refer to important system directories using standardized names — thus avoiding difficulties relating to the physical locations of particular directories. The appropriate assignments are usually made by the system as part of the 'start-up sequence' code. We shall say more about device names once we have explained AmigaDOS's use of 'directories' and search pathways.

AmigaDOS uses a tree based arrangement (a tree structure!) to group together logically related files. Users produce 'logical compartments' within a disk by creating a corresponding directory structure. Once a suitable structure has been created a user can choose to store any file in any particular directory, and thus can control the way in which AmigaDOS logically separates files present on a disk.

Files with identical names can coexist in different directories quite happily, but the price paid for such flexibility is that one usually needs to tell AmigaDOS which directory a file is in before AmigaDOS can find it. Since directories can be 'nested', i.e. directories can be created within other directories, AmigaDOS will often need to know the filename, the directory holding the file, and the directory holding that directory and so on. In other words we invariably need to inform AmigaDOS of the path needed to be taken through the directory structure in order that it can find the required file — this is what is meant by saying that we need to specify the 'search pathway'. When you specify a file in this way the slash (/) character must be used to separate both the individual directory names and the filename. Thus DF0: Examples/test refers to a file 'test' which is present in the 'Examples' directory of the disk present in drive DF0: .

Before we look at some specific examples we should mention that AmigaDOS will recognize commands and parameters typed in either upper or lower case. Both file and directory names are actually stored (and displayed) using the upper/lower case arrangement used when the file or directory was created, but when searching AmigaDOS disregards such information!

One of the best ways to learn about the AmigaDOS facilities available at a CLI window is to sit down with your Amiga and 'experiment'. So... switch your machine on, and 'boot up' using your WorkBench disk (as a safety precaution please make sure that it is write protected). Double click on the icon labelled CLI and a CLI window will open. Move and re-size it (using the drag bar and sizing gadget) until it occupies the whole width of the display and about half of the screen's depth.

The first thing to notice is that the window contains a 'prompt',

1> Unlike some other operating systems this AmigaDOS prompt is not related to a disk drive number but is the number that AmigaDOS has assigned to your CLI window, i.e. it is an AmigaDOS 'task number'.

To make AmigaDOS do something we must type a command. AmigaDOS will act upon the command as soon as the return key is pressed. Firstly type ABC and watch the disk drive light as soon as you press the Return Key. Your display should end up looking like this:

```
1> ABC (return)
Unknown command ABC
1>
```

Two points of interest... You will have noticed that the drive light came on. The reason for this is that all AmigaDOS commands are 'extrinsic', i.e. they are not part of the resident 'Operating System core' held in memory. Before a command can be performed it must be loaded from disk but since, in this case, AmigaDOS was unable to find a command called ABC it replied with .... Unknown Command ABC. There are three reasons why you might get these types of messages when you type a command. You might type a command that does not exist might mis-spell a command that does exist, or (for reasons that we shall discuss later) AmigaDOS might actually be looking in the wrong place for the command.

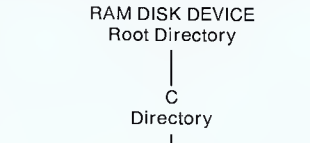
Now take out your WorkBench disk and type exactly the same command (ABC) again. This time a 'requester' will appear, asking you to insert your WorkBench disk. This has occurred because, as part of the startup sequence code, AmigaDOS has made certain logical device assignments which it 'remembers'. One such assignment links AmigaDOS's command directory to the 'c directory' of your WorkBench disk. In general, if the 'boot-up' disk that provided those original assignments is no longer available (because it has been removed or replace), then AmigaDOS will ask you to re-insert it. In our case the assignments were to the WorkBench disk and once this is re-inserted AmigaDOS will continue but, since it still will not be able to find a command called ABC, it will give you the same 'Unknown Command ABC' message as before.

We have already mentioned AmigaDOS's directories so let us now look at some directory related commands: All AmigaDOS formatted disks contain a single basic directory, called the 'root' directory, placed on the disk as part of the formatting and initialisation procedure which occurs when you format a disk. you can in fact format disks directly from the CLI window and the AmigaDOS command used to achieve this is FORMAT followed by the drive name and the volume name of the disk you wish to format. This is the form which the command should take:

```
FORMAT DRIVE <drivename> NAME
<volume name>
e.g. FORMAT DRIVE DF0: NAME
MyNewDisk
```

Once the disk has been formatted it is initialized and given the volume name that you have provided.

The ram disk device, just like a formatted physical disk, also contains a single root directory when it is created. As with other disks,if we wish to extend this arrangement we must explicitly ask AmigaDOS to create further directories for us — and this is just what we are now going to do. We are going to set up a 'ram disk' directory structure and duplicate the commands present on the WorkBench disk, then tell AmigaDOS to get its commands from our ram disk rather from the WorkBench disk. First of all let's look at a 'picture' of the directory structure we are going to create:



We start by using an AmigaDOS command called MAKEDIR, which enables us to create a directory with a specified name. initially we want to create a ram based command directory, which for consistency we shall call 'C'. Since the 'device' name is RAM:, and the chosen directory name is 'C' this is what you should type....

```
MAKEDIRE RAM:C <RETURN>
```

AmigaDOS will create the directory for you and then return with the 1> prompt. you can check that you now have a 'C' directory in your ram disk by using the command DIR to examine the ram disk contents. If you type DIR RAM: your display should end up like this....

```
1> DIR RAM: <return>
   C dir
```

AmigaDOS replies with 'C (dir)' confirming that the directory has been created. With a C directory now available in our ram disk we can use the MAKEDIR command again to create two further directories, which we shall call OLDNAMES and NEWNAMES, within this. We specify the path through the C directory and then let AmigaDOS create the new directories at the end of this path like this....

```
1> MAKEDIR RAM:C/OLDNAMES
                <return>
1> MAKEDIR RAM:C/NEWNAMES
                <return>
```

Having done this we have produced the directory structure that we wished to create. If however you type DIR RAM: you will get a surprise because AmigaDOS, although telling you that a C directory is present, will not show the two most recent directories that were created. These are 'nested' within the C directory and to find them we must actually 'look inside' the C directory. We achieve this by including the path to the C directory using DIR RAM:C and if all is well when you do this your display should end up like this....

```
1>DIR RAM:C (return)
  NEWNAMES (dir)
  OLDNAMES (dir)
```

confirming that the directories have indeed been created.

Now that we have a ram disk with our chosen directory structure available we can copy the contents of the WorkBench commands directory (i.e. the WorkBench 'c' directory) into our ram disk. The command we use to do this is COPY and, since it is a particularly useful command, we shall explain it in detail when we complete our look at AmigaDOS in our next article.

S.M.

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Mickey Mouse

Gremlin Graphics

I never really saw Mickey Mouse in the same league as super heroes such as Superman or Spiderman, saving the world from evil rulers, but I suppose everyone is allowed their bit of heroism once in a while of the kind Mickey performs in this his first licenced game.

Those wicked witches are up to their old tricks again and have stolen Merlin's magic wand and given it to the not-so-nice Ogre King. With these magical powers they can together take over Disneyland (what a horrible thought!). To cut a short story even shorter, the Orgre King then broke the wand into four parts and gave each witch a piece to guard. The witches have all split up and gone to the four tallest towers of Disney Castle where you must defeat each one to progress to the next level.

To reach the top of a level, Mickey must seal up all the doors in the tower, behind each door lies a sub-game that he has to complete successfully to board up the doors. There are four sub-games in all, the Puddle Maze, the Bubble Machine, the Pump Room (ooer!) and the Dripping Taps. Apart from being possibly too easy to complete, these games give the game variety and add to the enjoyable flow of play.

The journey to the top is far from easy, riddled with such meanies as ghosts, ogres and skeletons. Surely even Mickey Mouse cannot be expected to defeat all these on his own? Fear not, he has a couple of weapons to help him, a water pistol and a hefty rubber mallet (makes a change from the usual machine gun massacre!). Some monsters have to be destroyed using the mallet and others with the pistol. you have to be careful not to use up any water on near misses because it soon runs out. However if you shot is on target the monster will dissolve and leave behind a pot of water to boost up your supplies.

Some monsters are tougher than others and need to be mashed with the mallet more than once because sometimes they divide into two. If you are unsuccessful in destroying the monsters, part of your energy will be lost and eventually you will be no more.

Special bonuses can be picked up once a monster has been destroyed but leave it too late and they disappear leaving you with nothing. Bonuses include keys which need to be collected in order to open the doors (no more than two keys can be carried at one time); glue, which will stick all the meanies to the spot for a short while; a bird's head, that allows Mickey to walk off a balcony without falling to the ground and plenty more useful items can be found.

The towers have been drawn in a very imaginative and original way to give the game a very interesting atmospheric feel. The use of colour and excellent sprites is also top quality, especially Mickey who has been created very accurately and has a good solid look about him.

Mickey Mouse is definitely aimed at the younger players. It seems as though Gremlin have gone for the non-violent and simple type to suit young gamers, but that is not to say that the game is easy to complete, or lacks entertainment.

The absence of sound effects is a shame, but the in-game music suits the game well and is good to listen to. There are plenty of amusing parts in the game, including the little bow Mickey does at the start and the way some of the monsters split up into two when they are splatted with the mallet.

If you are not too keen on M.M. and like to use your brain a bit this may not be quite the game you are looking for. If, however, you are an avid Mickey Mouse fan — and he's certainly come back to popularity with all those T (and night) shirts — and like basic games without much need for thought, you should definitely consider popping off to your local dealer and getting a copy. Recommended.

Price: £19.99 **D.H.**

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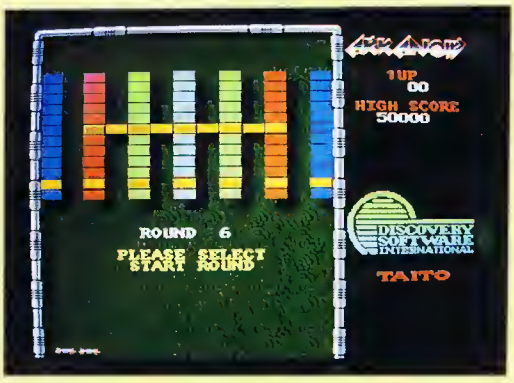

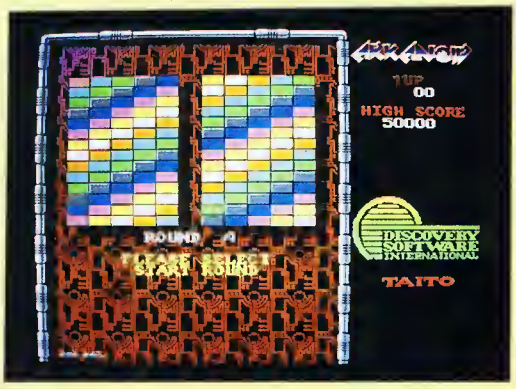

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As a special introductory offer from Amiga User International Magazine you can get Arkanoid for £19.95 – £5 off the recommended retail price – an amazing bargain! As our review says (again!) *"If you want a game that will become an Amiga classic, go and buy this, you won't be disappointed."*

4TH & INCHES

4TH & INCHES

US Gold

It was around a year ago that US Gold was released the original 64 version of 4th & Inches. We hailed it then as great and it is still one of the best American football simulations on the 64, Accolade have converted it to the Amiga almost bit-for-bit.

Select a one or two player game, survey your team line-up and you can get down onto the field for the start of the game. Plays are selected with the joystick from sets of short menus. With your strategy all worked out the players take up their positions. From the snap you get control of the quarterback. Depending on the play you selected beforehand, you will have either to hang around for a while giving your receiver time to get into space before passing the ball, or else find a gap in your opponents' defence and make a run for it. Usually your receiver is off the screen when it comes to making the pass, so you need to estimate the time it takes for him to have found space to make the catch. After a while you learn to time passes correctly but it is far from the ideal system. Some kind of long range scanner could have easily been added and would have made for a more realistic game.

When it comes to defence there is little you can do to stop the progress of the opposing team. You can select your tactics from a wide range of set-ups, but in practice you have to rely on the rest of your team and mistakes from your opponents. Very little has gone into the defending team's artificial intelligence.

Instead of scrolling the background with the ball, the programmers have chosen to use a 'zoom" feature that re-centres the action as it leaves the screen. It works well enough but breaks down the flow of the game.

All the graphics are almost pixel-perfect copies of the 64's. Compared to those of Cinemaware's TV Sports Football the sprites look pretty feeble. Although the tunes are nothing to shout about there are a couple of good digitised effects.

With all these faults, 4th & Inches remains a highly enjoyable game. American football enthusiasts will find plenty enough in it for some involved sessions, but it won't be long before you beat the computer opponent so a friend to play against will come in handy.

T.H.

Graphics: 5
Sound: 5
Playability: 7
Value: 6
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For anyone considering programming, a knowledge of Intuition can be vital. Mike Nelson begins an important new series that helps you harness its power.

INTUITION

The Amiga User Interface

What is Intuition? Why do I need to know about it? What can it do for me? Is it easy to use? Do I need an advanced degree in computing to harness its power? Over the next few months I hope to address these questions in a series of articles aimed primarily at those programmers who are starting off with the C language but the information will also be helpful to anyone using the Amiga system in other languages such as Pascal, Modula 2 or Assembler. The aim is not merely to summarise the Intuition Reference Manual (IRM) — although this is a vital acquisition if you do intend to do any programming, but to provide practical details of the system. Because of the nature of the Amiga operating environment it will be necessary to consider some of the other libraries of routines such as the Graphics and Exec libraries. These will be kept to a minimum as the whole idea behind Intuition is to make it do all the work, allowing you to concentrate on the more important aspects of your program.

So what can Intuition do? The best way to think about Intuition is as something which integrates the various inputs from the user of the Amiga (i.e. mouse movements, keyboard actions, etc.) Intuition supplies the details to the programs which are running, after processing the data so that your program only receives the input which it requires. From a programmer's point of view, it is a very flexible and powerful tool and from a user's viewpoint, it provides a constant, friendly work environment which is (theoretically) independent of the particular program. Providing you stick to the rules, Intuition will handle almost any task you require both quickly and efficiently with the added bonus that if it cannot help there are easy paths into the rest of the Amiga operating system.

Intuition is implemented in two ways. Firstly as a standard Amiga library which is opened by your program and contains all the ROM-based routines for its various jobs. Secondly it runs as a separate task, sitting on the input stream generated by the input device and filtering off the input it needs. This set-up is of fundamental importance in the Amiga's multi-tasking environment since your program should not access any hardware directly, but go through the operating system so that resources (such as memory or audio hardware) can be properly allocated and de-allocated.

"Intuition does much of the allocation of memory and communicating with the Exec part of the system for you and so you are able to concentrate on your program's purpose in life."

Herein lies the key to avoiding confrontations with the infamous Guru. If you can get into the habit of writing water-tight code and ensuring that you only ask for resources that you require and that you give them back when finished then you should have very few difficulties with crashes. Debugging is made much easier when you can count on some help from the rest of the computer! Of course you can go to the Graphics Primitives and try to sort things out from there and indeed there are some cases (such as double buffering) where this is the easiest way. Intuition does much of the allocation of memory and communicating with the Exec part of the system for you and so you are able to concentrate on your program's purpose in life rather than trying to cope with several types of input at once whilst updating a screen display and sorting your Christmas card list for next year.

You have probably noticed that the Amiga sports a natty little WIMP (windows, icon, mouse, pointer) interface which is naturally maintained by Intuition. Programs such as WorkBench, DPaint and Scribble! all have a characteristic "feel" about them which makes them very user-friendly and convenient. It is not necessary to learn endless combinations of keycodes in order to centre text or draw circles - the programs are controlled by the meaningful menus and requestors. That's all well and good for the user but what about us programmers and our software. How do we get the information? We simply tell Intuition what we want to know from the user and Intuition takes care of the rest. A standard system of message ports is used for different tasks (i.e. our program and Intuition) to talk to each other and this provides a means for communicating different events such as menu or requestor selections, changes in window characteristics or even key presses and timer information. This means that your program can go to sleep until the user requires its services and hence the 68000 is freed for other tasks to do their thing. The next question is where do we start? A quick glance at the IRM launches us straight in with screens and windows. This seems like a reasonable place to begin since these form the basic display elements of Intuition.

Screens

Screens are the means by which Intuition allows regions of the display to be split with widely different characteristics. For instance the user may wish to run DPaint in Lo-Res mode (i.e. 320 x 256 pixels resolution) and simultaneously have another program with a hi-Res (640 x 512) display. At a hardware level, the system employs the Amiga equivalent of raster interrupts (any '64 programmers out there remember those?) to split the display into regions of apparently different resolutions, colours etc.

The need for an Intuition-style system to co-ordinate all of these changes and to respond to the user's every whim regarding screen positions can be readily appreciated. Besides which it is incredibly tedious to mess around with loads of View and Viewport structures and the end result is not particularly conducive to multi-tasking. If everyone stuck to the rules and memory were a little cheaper we could all play StarGlider II and Leaderboard Golf whilst listening to one of those wonderful soundtracks which grace the Amiga's audio hardware at the same time.

If your program is relatively simple and does not require any fancy graphics modes or such like then you may simply use the WorkBench screen to open your windows and display your text. However this soon becomes limiting because only four colours are available for use. Thus it becomes necessary to open your very own Custom screen with its own resolution, colours, menus, windows, requesters and gadgets. The different graphics modes possible have been explained at the primitives level in previous issues of AUI and so I will not repeat the information here. The include files supplied with the various C compilers are a useful quick reference if you can print them out and the constants defined in the file graphics/view.h will tell you the screen modes available.

Windows

Screens are fine as far as screens go. You can write text into them, draw nice graphics and so on but when it comes to finding out what is being typed on the keyboard, checking on the wanderings of the mouse or acting on menu selections then you must use the windows. Why is this? Well Intuition needs somewhere to send its information to and this also provides you with a very flexible environment. The best way to understand this is to picture an application for generating adventure games. You have a Hi-Res screen with several windows in it for programming the various aspects of the game. Several text windows could be open to type in the text, and also to program the logic of the game. A window could be open to type in the text, and also to program the logic of the game. A window could be dedicated to graphics entry and display. Output could go to separate windows for text and internal details of variables and flags could also be handled. A nightmare to keep track of you may think. You are probably correct but Intuition at least makes this possible since each window can attach its own menus and gadgets to the screen when it becomes activated by the user clicking the left mouse button. To all intents and purposes there are several entirely separate sub-programs running but in reality all the windows are managed by different parts of the same one. All your program has to do is to be able to handle the input from each type of window. Intuition can tell you which you should be looking at. This is quite a lot to take in all at once but as the series unfolds with programming examples to illustrate the ramblings of text, hopefully the full potential of Intuition will become apparent. AmigaBASIC is a good (if slow!) example of the Intuition interface but certainly does not allow the programmer to exploit anything other than the most rudimentary aspects of the WIMP environment.

"AmigaBASIC is a good (if slow!) example of the Intuition interface but certainly does not allow the programmer to exploit anything other than the most rudimentary aspects of the WIMP environment.'

There are several different sorts of Intuition windows but we will only consider the simplest for the time being. This provides a reasonably effective window without too much stress on our party. The SUPER BITMAP, GIMMEZEROZERO, BACKDROP and BORDERLESS are variations which have their own peculiarities and uses but are mainly for specialised applications.

The program at last

The example given demonstrates the basic stages involved in opening screens and windows and also how you can draw in them using the Graphics Primitives. The screen is Hi-Res and contains three bit-planes which amounts to $2^3=8$ colours and a window with the full complement of system gadgets (i.e. open/close, sizing, dragging and depth arrangement). This will allow you to play around with the code and see what happens. The code is liberally supplied with comments to explain roughly what is going on but there are few points worth mentioning. Firstly it is best to avoid using "magic numbers" in C programs and instead define constants at the start of the program. The colour values for the screen are stored in an array called colourtable, a pointer to which is sent to the primitive function LoadRGB4 (). This then sets up the colour registers appropriately.

Intuition requires a pointer to a NewScreen structure when calling the OpenScreen () function. This data structure contains the details of how your custom screen will look, its size, and which pens to use in rendering the system gadgets and title bar.

The same goes for the NewWindow structure and a relatively basic window is set up. When you call OpenScreen() or OpenWindow you receive back a pointer to a Screen or Window structure in return. These are dynamically set up by Intuition so all your program needs to do is to provide a pointer so that subsequent calls to other Intuition functions are able to have some idea of the environment in which you are working. The most useful contents of the Screen and Window structures are the pointers to ViewPorts and RastPorts. These are data structures used by the graphics primitives in drawing etc.; examples of their use for this purpose are employed in the program function main().

I have used two functions for opening and closing the various Intuition items and libraries. This helps in ensuring that everything you open is closed at the end of the program and the resources allocated to the program are returned. Remember to close the libraries *after* you close the windows and screens since the CloseWindow() and CloseScreen() functions are contained in the Intuition library! It is also quite good practice to check that the Window and Screen structures exist before passing their pointers to the close routines otherwise you stand a fighting chance of a visiting to meditating guru.

The program is terminated when you click on the close window gadget. The code for this is slightly fudged and will be dealt with fully under the IDCMP article next month. Suffice it to say for now that I requested in the NewWindow structure for Intuition to inform me when that gadget is selected. After doing all the drawing, the program simply waits until the message is sent by Intuition that the CloseWindow has been selected. The program then closes the window itself (i.e. Intuition will not actually close the window automatically but inform you that the user wishes it. Who are we to argue?).

I hope to have introduced the

continued on page 40

Intuition philosophy and set you on the path to using it effectively. The program can be very easily modified to cater for most needs and you can experiment along these lines. You may notice some of the limitations when drawing directly into screens in that no checks are made regarding anything else that may be present. Try altering the initial X-Y coordinates of the window to somewhere that the program draws over (e.g. the bottom left of the screen) and see what happens. It is not a pretty sight and shows you why, if possible, windows should be used since Intuition is more careful about these.

```
/* Programming example: Intuition screens and windows */
/* By Mike Nelson StartDate 24-03.91 */

#include "exec/types.h"          /* Everyone uses these */
#include "intuition/intuition.h" /* Contains most graphics files also */


/* Do defines for colours */
#define WHITE  0  /* This is a convenient way of representing colours */
#define RED    1  /* in programs. #defines are preferable to magic    */
#define GREEN  2  /* numbers which can be very confusing when they     */
#define YELLOW 3  /* appear out of nowhere in the middle of 100K of   */
#define AQUA   4  /* source code.                                      */
#define PURPLE 5  /* Later on we use the primitive LoadRGB4 () to set */
#define BLUE   6  /* up the colour registers for us because it's not  */
#define BLACK  7  /* the done thing to do it ourselves.               */

/* now do colourtable array */
USHORT colourtable [2] = {
   0xFFF, /* White  */
   0xF00, /* Red    */
   0x0F0, /* Green  */
   0xFF0, /* Yellow */
   0x0FF, /* Aqua   */
   0xF0F, /* Purple */
   0x00F, /* Blue   */
   0x000, /* Black  */
   };

struct Screen *Screen;  /* These are POINTERS to structures which are */
struct Window *Window;  /* generated by Intuition not actual structures */

/* Now do the NewScreen */

struct NewScreen NewScreen = {
   0, 0,                 /* start x & y of screen */
   640, 200,             /* width and height */
   3,                    /* depth */
   0,                    /* DetailPen */
   1,                    /* BlockPen */
   HIRES, CUSTOMSCREEN, /* Thingys on end */
   NULL,                 /* default font */
   "This space is available for advertising",
   NULL,                 /* No gadgets ta */
   NULL,                 /* Nothing special about BitMap */
   };

struct NewWindow NewWindow = {
   250, 60, 350, 40,     /* LeftEdge, TopEdge, Width and Height */
   WHITE, BLACK,         /* DetailPen and BlockPen */
   CLOSEWINDOW,          /* IDCMP flag to quit program */
   WINDOWCLOSE | SMART_REFRESH | ACTIVATE | WINDOWSIZING |
      WINDOWDRAG | WINDOWDEPTH | NOCAREREFRESH,            /* Gadgets */
```

continued on page 46

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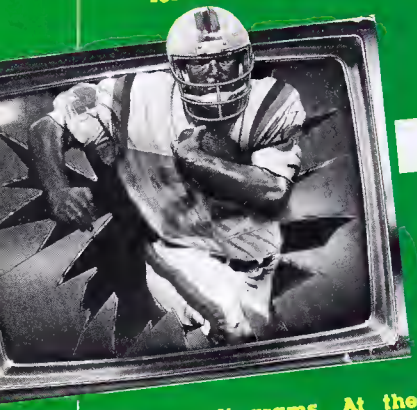
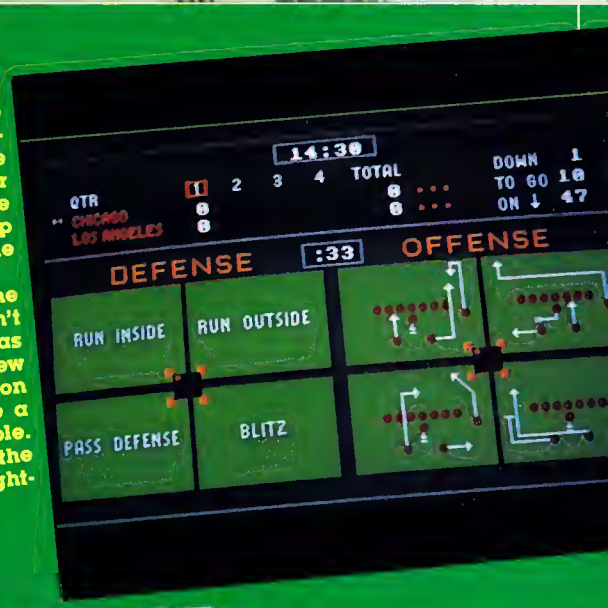
TV Spor

Following a string of stunning interactive movies, Cinemaware are now turning their attentions to sport simulations. American football is first on the list.

It has become a tradition that Cinemaware games are always fronted by detailed animated intros, and this is where the TV of the title comes in. A shot of a well-groomed presenter sitting seriously at his studio desk opens the proceedings. As the lights go up he musters up a cheesy grin and breaks into his pre-game build up.

The toss of a coin decides who gets the choice of kicking-off or receiving. You don't get to see the kick-off, so the action starts as the receiving team gets hold of the ball. A few seconds later it's into the play selection screen. From here the offence first choose a formation, pro-set or shotgun for example. Next you get a choice of four variations on the formation, helpfully illustrated with straight-

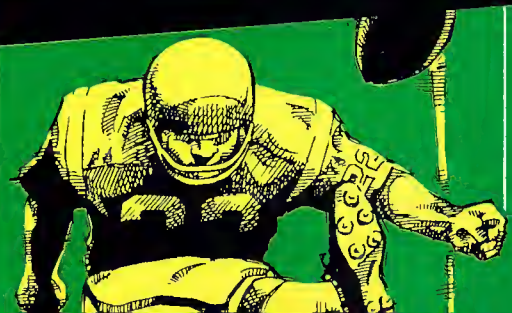




forward diagrams. At the same time the defence selects a line and tactics such as blitz or pass defence. All the selections are acknowledged with a bleep but are not revealed to the opposing team.

Down on the pitch the defending player can cycle through his team to take control of any available man. Once the quarterback gets the ball he has a few seconds to line up the pass. Moving the stick left and right directs his throw and pressing the button launches the ball. Using a cross projected a short way in front of the ball you have to time the length of the button press to determine the length of the throw

Control switches to the receiver, but not for long as the computer's defence are down on you like a ton of bricks. If you manage to score a touchdown there is the opportunity of an extra point from the kick. You can either leave it up to the computer (he's not perfect and sometimes misses) or do it yourself. Either way, you get an animated 3D view from behind the kicker followed by a sampled voice announcing the outcome.



Solo players are likely to find the computer opponents too skillful to begin with but ultimately too easy with practice. For this reason TV Sports Football is best played against a friend. In the action scenes the players are superbly animated and detailed in their movements. However, one problem I found was that the men under player control flash, but they flash rather slowly between the two colours of the opposing teams. This can lead to confusion when a brief glance at a player isn't enough to determine whether he has the ball, or even whether he is on your team!

ts Football

Cinemaware

The excellent sound effects are not just for show, as they can let you know above all the action that a pass has just been sacked.

Sampled sounds and giant-sized graphics have an enormous appetite for memory and the game comes on two disks. That is fine with a dual-drive system, but disk swapping can become irritating after a while on single-drive machines. Part time US footie fans could find the game a bit too long but then that's just like the real thing.

This month TV Sports Football is challenged by US Gold's 4th & Inches, but Cinemaware's game far out-classes it. There is all the strategy of the game combined with realistic action on the pitch, making it the best ever computer simulation of the game, and I can't see anyone surpassing it for a long time to come. There is just one thing: thirty pounds is an awful lot to ask for a computer game, but no doubt hardcore gridiron fans will think it cheap...

T.H.

"Now control switches to the receiver, but not for long as the computer's defence are down on you like a ton of bricks."

Graphics: 9
Sound: 9
Playability: 8
Value: 7
Price £29.95

Heard It On The Grapevine

Late at night a figure skulks on street corners, he hides in mail boxes and taps the phones...It's Tony Hargan tuning in to the latest on the grapevine circuit...

Coin-op conversions are becoming increasingly popular on the Amiga (popular with the software houses at least), and US Gold's bulk licensing deal with Capcom is dominating their line-up of imminent releases.

TIGER ROAD is a fairly traditional scrolling platform adventure with an orienial flavour. Some dark stranger has kidnapped a bunch of toddlers, and you have volunteered to carry out the rescue mission. Spikey mace in hand, you set out to bash some bonces and generally show the baddies who's boss. Tiertex have come up with the goods on the graphics side, with some beautifully shaded sprites and backgrounds hidden in the game's deeper recesses. Fortunately the programmers have improved their scrolling routines since the jerky conversion of Rolling Thunder and the whole thing looks very promising.

LED STORM and LAST DUEL are a couple more that have made their way to the Amiga via Capcom's arcade machines. Both put you in control of a sleek red sports car driving up a vertically scrolling assault course, jumping over gaps in the road. Where they differ is that Last Duel is more of a shoot 'em up than the straight car race of LED storm.

My favourite machine currently doing the rounds of arcades at the moment is GHOULS 'N' GHOSTS, the sequel to the brilliant Ghosts 'n' Goblins. Stunning graphics and loads of new ideas have been combined with the instantly playable platform action of the original. Grim reapers, mad magicians, vultures, carnivorous trees and pigs are some of the savage beasts that turn up in the opening stages. As most of the graphics consist of sprites and scrolling backgrounds (superb though they are) as opposed to super-fast 3D, it should convert extremely well to the Amiga.

"Grim reapers, mad magicians, vultures, carnivorous trees and pigs are some of the savage beasts that turn up in the opening stages."

In keeping with tradition, Hewson's next 16-bit release is a shoot 'em up going by the name of CUSTODIAN. The star of the show is a jet-packing spaceman, who in his excitement has a tendancy to bend double and wear a moronic grin throughout the game. Plenty of mega-weapons and suicidal aliens make this one to look out for if you're a zap-happy joystick-junkie with a will to kill.

Finally there's the news that US Gold have scooped up the rights to produce a computer game of Michael Jackson's weird and wacky Moonwalker movie. Just what kind of a game they intend to write around the collection of tracks from Bad and a flimsy anti-drugs storyline, we'll just have to wait and see...

T.H.

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continued from page 40

```
    NULL,                   /* No gadgets on offer today sorry */
    NULL,                   /* Nothing as sophisticated as a CheckMark */
    "Mike's WINDOW!"        /* I'm titled you know */
    NULL,                   /* Pointer to Screen structure */
    NULL,                   /* Intuition gives us the BitMap so ignore this */
    100, 25,                /* Min Width & Height */
    640, 200,               /* Max Width & Height */
    CUSTOMSCREEN            /* Type i.e. what sort of screen we appear in */
    };

/* These are used when gaining access to the various libraries of ROM
   routines */

struct IntuitionBase *IntuitionBase;
struct GfxBase *GfxBase;


/* Screen ViewPort & RastPort. Keep these global so that any part of the
   program can use the Graphics Primitives for drawing etc */

struct RastPort *ScreenRP;
struct ViewPort *ScreenVP;

void main (), OpenStuff (), CloseStuff();

void main()
{
   int x,y; /* Used for drawing the pattern */

   OpenStuff ();

   /* Now try something in the window  */

   Move (Window -> RPort, 20, 20);
   Text (Window -> RPort, "Are through the square window today", 25);

   /* What about the screen? */

   Move (ScreenRP, 20, 20);
   Text (ScreenRP, "Hello Mum!",10);

   SetAPen (ScreenRP, BLUE);
   SetDrMd (ScreenRP, JAM1);
   Move (ScreenRP, 20, 30);
   Text (ScreenRP, "This text should be in blue.", 22);
   SetAPen (ScreenRP, YELLOW);
   Move (ScreenRP, 20, 40);
   Text (ScreenRP, "And this in yellow.", 19);

   /* Let's draw a fancy pattern with line draws */

   SetAPen (ScreenRP, BLACK);
   y = x = 5;
   Move (ScreenRP, x, y);
   Draw (ScreenRP, 5, 195);
   Draw (ScreenRP, 635, 195);

   for (y = 5; y < 196; y += 5)
   {
```

```
    x = y * 630 / 190;
    Move (ScreenRP, 5, y);
    Draw (ScreenRP, x, 195);
}

Wait( 1 << Window-> UserPort-> mp_SigBit);

/* Ouch what is this chunk of fudge? Don't worry all will be revealed
   in the next thrilling instalment. All it does is wait until you
   click on the "CloseWindow" gadget to quit program. */

   /* Shut up shop and return all resources to Exec  */

   CloseStuff ();

} /* End of main so bye bye */


void OpenStuff (){

   /* Now open the libraries i.e. Graphics and Intuition */

   IntuitionBase = (struct IntuitionBase *) /* These two lines are all */
      OpenLibrary ("intuition.library",0);  /* one statement!          */
      if (IntuitionBase == NULL) exit (FALSE); /* Ask for a refund!    */

   GfxBase = (struct GfxBase *) OpenLibrary ("graphics.library",0);
      if (GfxBase == NULL) exit (FALSE);

   /* Open the screen */

   if ((Screen = (struct Screen *) OpenScreen (&NewScreen)) == NULL){
      CloseLibrary (IntuitionBase);
      CloseLibrary (GfxBase);
      exit (FALSE);
   }

   ScreenRP = &Screen -> RastPort; /* Set a convenient pointer to the Screen
                                      RastPort structure */
   ScreenVP = &Screen -> ViewPort; /* and also the ViewPort! */
   LoadRGB4 (ScreenVP, colourtable, 8); /*  Should load in the colours! */

   NewWindow.Screen = Screen;     /* Set pointer to Screen */

   /* OK now Open it! */

   if ((Window = (struct Window *) OpenWindow (&NewWindow)) == NULL){
      CloseScreen (Screen);         /* Seriously shortage of memory */
      CloseLibrary (IntuitionBase); /* will cause this to occur or  */
      CloseLibrary (GfxBase);       /* a duff NewWindow structure   */
      exit (FALSE);
   }
}

void CloseStuff (){
   if (Window) CloseWindow (Window);
   if (Screen) CloseScreen (Screen);
   if (IntuitionBase) CloseLibrary (IntuitionBase);
   if (GfxBase) CloseLibrary (GfxBase);
}
```

MEDIA LINE FONTS

John Walker considers a package that goes some way to remedy an ugly defect.

While I sit typing at a computer keyboard, I often think how odd it is that the electronically-formed characters appearing on the screen owe their shapes to far cruder and more basic technologies: a scribe with a goose-quill and ink, and a stone-mason with a hammer and chisel.

Most of what we read owes its form to the letters carved on the Trajan Column in Rome in more than 1,800 years ago. From that source comes our liking for elegant serif typefaces; those with varying thick and thin lines and with cross-lines at the end of each stroke.

Sans serif typefaces (you are reading one now), which lack the cross-lines and have lines of equal thickness, can be traced back to the ancient Greeks — although it is only in this century that they have gained great popularity for setting text.

Much printed information still derives its style from the pens of the Italian scribes of the 1450s. It is an influence that has survived changing technologies, from hand-crafted letters to hot metal methods, cold photographic approaches and the current cool computer technology.

What we really need now are typefaces designed for computers — ones that can make advantage of the machine's capabilities and overcome its limitations. The problem with computer printing from the screen, at a basic dot-matrix level, is that of resolution: bitmapped fonts have jagged edges and curves.

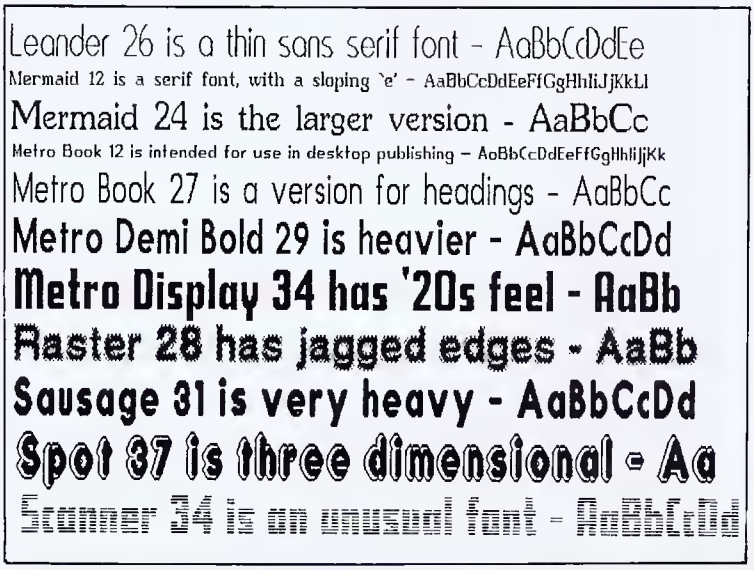
It is something that Commodore ignored when providing bit-mapped fonts for the Amiga. All are ugly, with ill-formed characters, and most reproduce poorly. Commodore has begun to rectify its errors by supplying four Adobe PostScript fonts — Courier, Helvetica, Times Roman, and Symbol — on the Extras disk that comes with its 1.3 Enhancer set. While these reproduce quite well with a dot-matrix printer, they are really meant for use with a PostScript laser printer. Commodore has made no attempt to improve its bit-mapped fonts.

For that reason, it is possible to give a moderately warm welcome (slightly hotter than tepid) to Media Line's Amiga Font Disk 1, which provides nine different bit-mapped fonts in three styles: normal, bold, and italic. It is difficult to be more enthusiastic, since the selection of fonts is on the dull side and the range of sizes provided is restricted. Much more, too, could have been fitted on the single unprotected disk on which they are contained, since that is less than half full.

The fonts, designed by a Dane, Tore Bahnson, are intended, according to the packaging, for 'professional use in video presentation, graphics, animation and desktop publishing'. I tried them with Deluxe Paint, Photon Paint, ProWrite 2.0 and PageSetter. Of the nine fonts, two — Metro Book and Mermaid — are in 12 point sizes, which are used for printing body-text. The other six are display types, intended for headings. The main drawback here is their small size: the largest, Spot, is 37 points (or lines) high.

Eight are sans serif fonts. The other, Mermaid, is a serif font which looks uglier than most because of its sloping strokes, particularly on its 'e' and 'a'. Mermaid is provided in 12 and 24 point sizes. According to Bahnson, it is based on the Souvenir font, which has never had much to recommend it. Mermaid's letter-shapes derive from one of the earliest Roman typefaces, that of Nicolas Jenson, which dates from the 1470s. Jenson combined chiselled letter shapes with more flowing handwritten styles. Neither transfers well to bitmapped printing since dots and smooth curves do not mix.

MetroBook, which is available in 12 and 27 point sizes is a sans serif



continued on page 94

SEARCHING AMIGADOS DIRECTORIES

The AmigaDOS resident library consists of a small core of routines which simplify the interface between a program and the Amiga's disk filing system. One of the first things that a programmer wishing to use these routines much understand is how to search an AmigaDOS directory/file structure. It is not that difficult to do but, judging by some of the letters that we have had, it is an area that you would like us to discuss — so here we go . . .

Paul Andreas Overaa

Locks and Lock()

You will come across the term 'Lock' quite often in the AmigaDOS literature. It is a data structure used by AmigaDOS and, if you look in the 'dosextens.h' header file you will see this particular definition . . .

```
struct FileLock {
  BPTR        fl_Link;      /* A bcpl pointer to next lock */
  LONG        fl_Key;       /* disk block number */
  LONG        fl_Access;    /* exclusive or shared */
  struct Ms   gPort *fl Task; /* Handler task's port */
  BPTR        fl_Volume;    /* A bcpl pointer to a device list */
              };
```

You don't need to know much about these structures in order to use them but, for the curious, here's a brief rundown . . . 'fl_Link', fl_Task and fl_Volume contain information which is really only of interest to AmigaDOS itself — you're unlikely to need these fields, and you certainly should not interfer with them. There are two fields which you may find occasional use for . . . these are the fl_ Key field, which is the location on disk of the directory of file header block, and the fl_Access field, which shows whether the lock is for a 'shared read' or 'exclusive write'.

The AmigaDOS routine which initializes such structures for you is called Lock () and has the following format:

```
lock_pointer = Lock (name, mode)
```

The first parameter, 'name', is a normal C string pointer, i.e., the start address of a null terminated string. The second parameter, 'mode' can take one of two values ACCESS_READ or ACCESS_WRITE. The values for these items are defined in the dos.h header file with SHARED_LOCK and EXCLUSIVE_LOCK being defined as acceptable synonyms.

The Lock() function will return either a valid pointer to a FileLock structure, or it will return a zero indicating failure. If, as an example, you want to get a shared read lock on the root directory of DF1: you could use Lock() like this . . .

```
RootDirLock = Lock ("DF1:", ACCESS_READ);
```

The zero failure convention is convenient because it allows us to use implicit conditional testing. This means that instead of having to write this type of code . . .

```
RootDirLock = Lock ("DF1:", ACCESS_READ);

        if (RootDirLock!=NULL)
          { actions to be performed; } .
```

we can use the more concise implicit test form . . .

```
if (RootDirLock = Lock ("DF1:",ACCESS_READ))
          { actions to be performed; }
```

In both cases the call to Lock(), if successful, results in RootDirLock containing a pointer to the appropriate FileLock structure. Once such a FileLock pointer is available there are two routines, Examine() and ExNext () which enable detailed information to be obtained about the directories and files present in this part of AmigaDOS's file/directory structure.

Examine()

This routine uses your lock pointer to complete a 'FileInfoBlock' structure. The FileInfoBlock structure is defined

continued on page 54

PREVIEW

FALCO

Spectrum HoloByte

MIRRORSOFT

Until now, Electronic Arts' Interceptor was the unchallenged king of the skies. All that could change very soon, if first impressions of Falcon are anything to go on.

One of Interceptor's strongest points in my view was it's user-friendliness. A novice could be up and locking-on to Migs with no more than a glance at the keyguide. For some, this was interpreted as a lack of realism, and it was accused of being too shallow. Falcon is the game for all those "serious" flight sim fanatics who found A.T.F's airborne offering too undemanding.

Coming out on top of a dogfight in an F-16 Falcon takes years of practice, and although

N

programmers Spectrum Holobyte have not taken things that far, considering their simulation is going to be hot from easy. For a start, the head-up display is one of the most complex ever seen. As well as the dial-packed front panel, views to your left and right contain essential flight info (not to mention a pretty view). A spatial plane view is also available for getting your bearings and fast admiring the game's spectacularly spacious graphics. With the zoom and rotate functions just about any view-point can be selected.

An abundance of extras spread throughout the game include crash warnings in the form of sampled speech, short snapshot sequences outlining the cause of your demise or the success of your mission, and an air manoeuvre tuition mode. With five skill levels and twelve missions, a blackbox flight recorder, blackouts and redouts from excessive positive and negative g forces, together with the highly convincing solid 3D graphics, Falcon looks to be the most realistic flight sim yet seen on the Amiga.

It needs a thorough examination which means many, many hours of practice and 'play' it certainly looks worth it. *T.M.*

PHANTOM FIGHTER

Martech

Programmed by Irish programmers Emerald Software, Phantom Fighter is a vast improvement over Martech's previous efforts on the Amiga, bringing it up to the standard it achieved with its Oskar-winning 8 Bit games.

A traditional scrolling alien zapper, Phantom fighter takes you through six death-spewing levels, starting with the Cavern of Despair. Your transport for this suicide mission is a rotund ship, nicely fashioned in polished copper. As has become that standard, the aliens glide onto the screen in their pre-programmed flight paths. Unlike most however, the order of the attack waves is random, avoiding a certain amount predictability and providing a constant and difficult challenge.

Terminate a whole gang of aggressors and you may be lucky enough to find a discarded weapons pod. In the style so favoured by Capcom's coin-ops, shooting these alters the type of armaments they yield. Faster reloading and ship movement are a couple of the more basic add-ons, while side-shots, double strength lasers and plasma bolts make alien anhialation a pleasure. Homing missiles take the strain out of every-day zapping, but make sure you re-arm before coming face to face with a mothership against which they are totally useless.

Once the first level guardian has been seen to, the scrolling switches from horizontal to vertical. From the spooky caverns you emerge over an equally spooky dinosaur graveyard. Huge skulls and skeletons lie semi-submerged in the dunes while the battle continues in the skies above. Despite the dramatic change of scene, the only noticable differences in play are the ground-based missile launchers and the double guardian.

Back to the horizontal scrolling for the third level which is played against a backdrop of a weird rock formations riddled with squirming tentacles. Survive both that and the lava-dribbling volcano level that follows, and you enter the final scene set in a giant robot factory.

Nothing too adventurous has been attempted with the sound, just the standard zap-kapow effects and a backing tune.

Phantom Fighter's background graphics are often stunning, making superb use of colour and shading. It is a shame that the aliens weaving their way across the screen look so separate from these graphic masterpieces. The potential for interactive sprites and backgrounds is immense in Phantom Fighter. Sadly, less of this is tapped than might have been hoped and due to the lack of innovation in any other areas, the game is no more that a well -produced but unremarkable shoot 'em up.

It is worth taking a look at for its spectacular graphics and does have an agreeable addictive feel about it. Martech could make an impact with this one.

T.H.

Graphics: 8
Sound: 6
Playability: 7
Value: 7
Price: £19.99

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in the dos.h header file and, because it holds some very useful information, is worthy of special attention: First let us look at the layout . . .

```
struct FileInfoBlock {
LONG fib_DiskKey;
LONG fib_DirEntryType;          /* Type */
char fib_FileName[108];         /* Name of the file or directory */
LONG fib_Protection;            * Bit mask */
LONG fib_EntryType;
LONG fib_Size;                  /* File size in bytes */
LONG fib_NumBlocks;             /* Number of blocks in file */
struct DateStamp fib_Date;      /* Date file was last changed */
char fib_Comment[116];          /* Comment associated with file */
                    };
```

The 'fib_DirEntryType' field enables you to distinguish between a directory and a file. If fib_DirEntryType<0 then the information relates to a File, if fib_DirEntryType>0 then we have been given information about a directory. Although the filename has a current maximum of 30 characters the extra space in the structure may be used by AmigaDOS at a later date — so it is best NOT to regard the extra space as being available for your own use. The fib_Protection field is currently only 'partly implemented' — the lower four bits of the mask have been defined for some time and now bit 4 itself has been designated as an 'archive' bit (cleared whenever a file which has been written it is closed or a directory updated).

archive bit.....bit 4
reads.....not allowed if bit 3 is set
writes.....not allowed if bit 2 is set
execution.....not allowed if bit 1 is set
deletion.....not allowed if bit 0 is set

Standard names for the 'protection' flags are provided in the header files but, since the current release of AmigaDOS only checks for the deletion bit, you will only really need to worry about the FIBF DELETE flag — a bit mask corresponding a bit 0 being set.

You do, incidentally, have to be careful when you set up a FileInfoBlock structure because it MUST be long word aligned. The standard approach is to use allocMem() to allocate the memory like this:

```
Edefine FILEBLOCKSIZE = (LONG)
    (sizeof (struct FileInfoBlock))

info_block_p = (struct FileInfoBlock *)
                                AllocMem
  (FILEBLOCKSIZE,MEMF_
```

The Examine() routine itself takes the following form:

Boolean success/fail = Examine (file_lock_p, file_info_p)

To use the Examine() function you provide the pointers to both the file lock and a FileInfoBlock structure. Examine() attempts to fill your info block with details of the first file or directory associated with the lock and will return a zero if it fails.

To step through the entries associated with a particular lock we use the ExNext() function. This takes the same parameters as Examine() but uses and modifies your existing FileInfoBlock so that its data reflects the next entry found. If there are no further entries then ExNext() returns a zero indicating failure. It is usually best to check that any error return is of the type you are expecting and there is a general error routine to help.

IoErr()

As a rule, when as AmigaDOS function fails you can get additional information about the cause of the failure by calling a routine called IoErr(). The format of the call is straightforward . . .

error = IoErr()

When we get a 'lock' on a particular directory we effectively obtain access to a particular 'node' of the selected file/directory tree. Examine() and ExNext() provides us with the mean of identifying the components of that node, i.e. of identifying both the files present and any further directories present. To illustrate the type of code you would use to search such a 'node' I have written a short CLI based program which obtains a shared read lock on a directory, allocates the necessary FileInfoBlock memory, and then use Examine() and ExNext() to step through the entries that are present. It uses the fib_DirEntryType to decide whether an entry is a file or a directory and prints its name followed by (file) or (dir) respectively.

Locks must be always removed before a program terminates otherwise AmigaDOS will never realize you have finished with the file. The routine which does this is called UnLock() — it is an easy routine to use as you will see from the program.

The complete list of the error codes which are returned are available in the dos.h header file, but here are the most useful ones . . .

```
#define   ERROR_No_DEFAULT_DIR          201
#define   ERROR_OBJECT_IN_USE           202
#define   ERROR_DIR_NOT_FOUND           204
#define   ERROR_INVALID_LOCK            211
#define   ERROR_DISK_NOT_VALIDATED      213
#define   ERROR_DISK_WRITE_PROTECTED    214
#define   ERROR_DIRECTORY_NOT_EMPTY     216
#define   ERROR_TOO_MANY_LEVELS         217
#define   ERROR_DEVICE_NOT_MOUNTED      218
#define   ERROR_SEEK_ERROR              219
#define   ERROR_DISK_FULL               221
#define   ERROR_DELETE_PROTECTED        222
#define   ERROR_WRITE_PROTECTED         223
#define   ERROR_READ_PROTECTED          224
#define   ERROR_NOT_A_DOS_DISK          225
#define   ERROR_NO_DISK                 226
#define   ERROR_NO_MORE_ENTRIES         232
```

Editorial Note: Workbench 1.3

Last month we announced the release of Workbench 1.3 in the UK. We will review the Enhancer Software package, including AmigaDos V1.3, Kickstart V1.3, Workbench V1.3, and Extras in the next issue of AUI. For more information, contact Commodore Business Machines (UK), Ltd, Commodore House, The Switchback, Garden Road, Maidenhead, Berks SL67XA Tel.(0628) 770088.

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continued from page 54

```
/* ------------------------------------------------------------------------ */
      AMIGA DOS DIRECTORY SEARCH - CLI BASE EXAMPLE
/* ------------------------------------------------------------------------ */

#define FIB_SIZE            (LONG)(sizeof(struct fileSInfoBlock))

#include <exec/types.h>
#include <libraries/dos.h>
#include <libraries/dosextens.h>
#include <exec/memory.h>

main()

{
char name[300];
struct FileLock *CurrentLock_p, *Lock();
struct FileInfoBlock *FIB_p;
BOOL still_more_data;

printf("Device:path/filename : ");

scanf("%s",name); /* Input the name of the file or directory */

if(CurrentLock_p=Lock(name,ACCESS_READ))
        {
         if(FIB_p=(struct FileInfoBlock *)AllocMem(FIB_SIZE,MEMF_CLEAR))
         {
          if(Examine(CurrentLock_p,FIB_p))
               {
               if(FIB_p->fib_DirEntryType<0)
                    { /* Unique file reference found */
                printf("%s is %s \n",
                FIB_p->fib_FileName,"(file)");
                    }

                 else { /* Nonunique reference found */
                      cc { printf(FIB_p->fib_FileName);

                           if(FIB_p->fib_DirEntryType>0)
                                {
                                 printf(" %s \n"," (dir)");
                                }
                            else {
                                 printf(" %s \n"," (file)");
                                 }
            still_more_data=ExNext(CurrentLock_p,FIB_p);

         } while(still_more_data);
     }

     }
FreeMem(FIB_p,FIB_SIZE);
    }
         UnLock(CurrentLock_p);
   }
exit(TRUE);

}
*/------------------------------------------------------------------------*/
```

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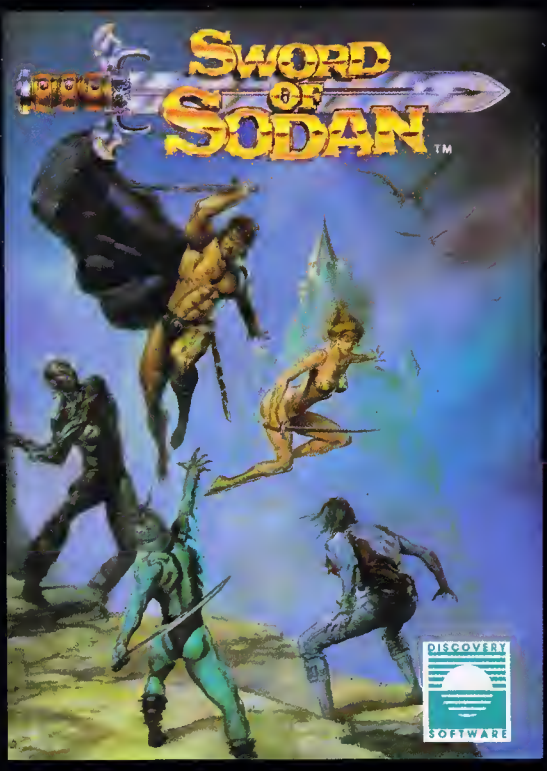

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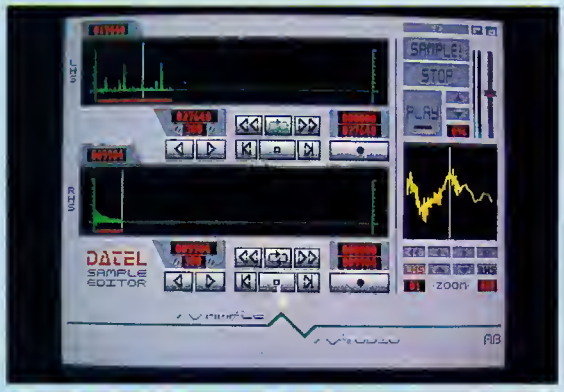

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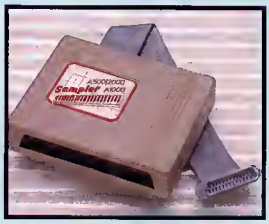

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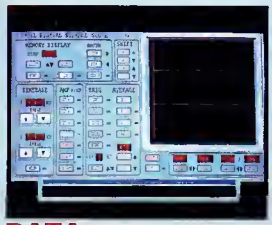

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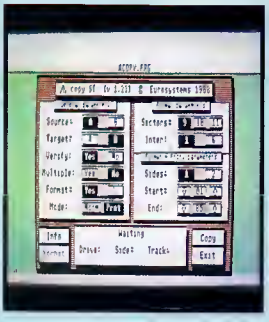

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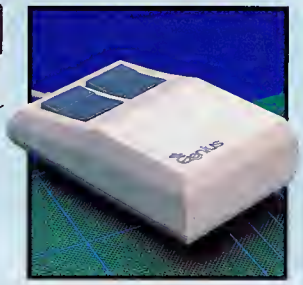

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Electronic Diary

Casio

Mark Smiddy took a innovative new electronic device out for a test drive and came back with some amazing revelations...

Diaries have been kept for centuries but when someone decided to market the idea with a fashionable modern-sounding name, like Filofax, the yuppies went wild convinced it was something new. Very soon though, many people find themselves lumbered with an expensive pile of paper containing scribbled notes and ill-coordinated facts.

Now at last the problem has been solved - in beautiful style. Casio's new IF-8000 retains all of the features essential in the modern day electronic diary - coupled to a pressure sensitive display! This remarkable piece of electronic wizardry has all of the benefits of a normal organiser - but can be drawn or written on, just like a piece of paper.

This frees you from resorting to easily lost scraps of paper or not having a pad close at hand to make notes on. All this in a case about the size of an ordinary pocket calculator. The really clever bit is Casio have incorporated a full keypad into the case itself so when folded, the whole thing fits neatly and unobtrusively inside a jacket or even shirt pocket - just try doing that with an Organiser II; possible but potentially uncomfortable (even d .gerous!) /or a filofax

Before I contin. to extol the benefits of this wonderful gadget - a word about what it will not do. It is not a Hand Character Recognition system or HCR. That is, what you write is what you see - your handwriting is not converted into typed text.

What it will do on the other hand, is store anything which you can draw - within reason - with the special, pen-like, stylus supplied. This means small street maps, diagrams, even doodles. With this unit you need never get lost again; which blows another excuse for being late for those important meetings. Each drawing can be made up of up to four screens - organised like a large square - and up to 50 screens can be stored at once.

The ability to be able to draw directly onto the screen is not a lot of use - unless you can tie it to some plausible explanation.

The dairy is split into four distinct sections: Telephone book, Memo pad, Schedule and Calender. The last two being further tied together just to confuse the issue initially. In addition, there is a simple though useful calculator.

Possibly the most often used feature of diaries is to store people's telephone numbers. With the IF-8000, it is very simple. Pressing the telephone pad switches the unit into telephone mode: Now by selecting the input mode peoples names and numbers can be input as normal. The advantage is the names are stored alphabetically and can be got at very simply.

Simply press the first couple of letters of the name to be searched for, press the telephone button and as if by magic, the information appears. Gently touching the screen where the name is printed brings up the specifies. In this way you only have to search for say one or two letters rather than a whole name. This is a lot easier than searching a Filofax type organiser.

The next most important feature is the Memo. This is used very much like a real memo pad. Items of data are given a headline; the first line of text then any other specific information like a simple sketch or map. When you want to get the information back the unit simply displays the list of headlines. Tap the screen at the one you want and it is displayed immediately. Similarly if you have a lot of pages you can search for a specific one.

Possibly the most versatile feature of the IF-8000 is its Calender/Schedule. The calendar supplies one of those which extends way beyond the year 2000 and can supply information as a full month, one (numbered) week within a month or a complete day. For executives and any other busy person this is a real must. These pages work in a similar manner to the memo pad with one important difference - they are keyed on times and dates.

Say you have a meeting at three o'clock on 15-2-89. All you have to do is use the calendar to select the appropriate date first find the month then tap on the required date. This is then displayed in the schedule format ready to input the time and details. The Clever bit is when you enter any data at a specific day, the calendar automatically highlights it on the full month display.

All of the major functions have full editing and search facilities. It is even possible to edit and change the existing data without having to re-type the whole lot. And if you do decide to clear part of the machine to free, up some memory it even has a menu driven reset and self-calibration routine.

Rarely have I seen such a remarkable piece of innovation as this. Casio have taken some very simple ideas, combined them with existing technology and presented a very professional piece of equipment. My only real concern is for the spine on the case. This feels very pliable - it has to be to carry the multitudinous connector to the main system - but years of constant use could possibly see it suffer.

All the same, I personally own a Casio watch and calculator, both of which have given me years of trouble-free service and had little care or respect in return. There is only one word suitable for this unit- (superlative!)

Model: Casio IF-8000
Display: 6144 pixel LCD organised as 16 columns by 8 lines
Memory: 15,328 characters or 50 pages
Battery life: Apx. 100 hours continuous - Plus 2 year memory backup
Dimensions MMs: 12.5H 07 193W 07 150D (Fully open)
14.0H 07 92W 07 150D (Folded)
Weight: 200 (7.10Z)
Product: Digital Diary
Positive points:
Graphics ability, very easy to use, large keys, clear display.
Drawbacks: Non-QWERTY keyboard, no real-time clock or capitals lock, fixed memory.
Contact: See special offer on page 48.

Computing Horizons

Daphne Moss looks at a book that examines some of the more extraordinary computer concepts of modern times and whether they lived up to their promise.

In last December's issue of C.C.I Managing Editor Antony Jacobson wrote that ' There is a rapidly changing computer picture. Both in the home and in business, all over the world, there are almost daily events that can reverberate right around the globe, often in unexpected ways'. The truth of his words can be seen in an engrossing new book 'Computing Horizons'.

This is a collection of Durham's own articles that were originally published in a weekly general computing magazine from 1983 to 1985 and the author has added his comments on the progress — or otherwise — that has been made on the various subjects since their publication. Some of the obvious strides that have been made in computing since the articles were written were foretold at the time. Some of the more embryonic and imaginative ideas have been lost either through lack of support, monetary or otherwise, or because they did not prove feasible.

For example, in September 1984, research was being done at Leicester Polytechnic on SYNICS. This was a 'Front-ending' toolkit being developed by the Polytechnic's Human-Computer Interface Research Unit.

'Front ends' are the human-user interfaces of software which enable the users to configure the software to their own personal taste. Leicester was concentrating on developing front ends and would perhaps, eventually, have come up with a new computer language. Unfortunately, the experiments foundered when Ernest Edmonds and his Unit moved from the Polytechnic. The research then continued at Loughborough University.

Tony Durham does not actually go into the reason for the transfer but it was presumably because funding at Leicester was either inadequate or running dry. He does say though, and I feel it is a valid point, that 'Good research can certainly begin at a polytechnic. It is sad when it cannot continue there.' Polytechnics are the 'poor relations' of the U.K. further education system, a state of affairs which clearly needs to be remedied.

Another research program which was being developed in 1985 and would, and indeed still may, be of benefit to mankind is called TUTOR. Developed by LOGICA, then under contract to the British Ministry of Defence, this is an example of a project which uses Artificial Intelligence techniques.

A tutor is just what it is. A system which can 'provide inconspicuous and sensitive help to a human being undertaking an important task — learning'. It can also provide a so-called 'mixed initiative dialogue' which closely resembles that which takes place between a human tutor and a student, which is one of the things missing — or was in 1985 — in conventional computer-aided instructions.

One of the applications for which it was meant to be used was to instruct air traffic controllers on the rules of flight safety regulations which they have to observe, but on a more sophisticated and yet easier to learn level than was then in general use. Again, it was a program that foundered. This time not through lack of funds or facilities but because, and this seems an incredibly short-sighted and stupid policy, no military instructor was available to supply expert knowledge of the subject.

Since that article was written, three years ago, air traffic controllers have had an increasingly difficult and arduous job to perform. 'Near misses' between aircraft are being recorded with alarming regularity and many of these are almost certainly a direct result of human error. TUTOR might have been instrumental in preventing at least some of the mistakes.

What is interesting, though, is that TUTOR itself has not been lost altogether. It will be employed in a £6,750,000 effort to apply knowledge based systems to the Department of Health and Social Security.

Tony Durham's book gives an insight into the way that the creative processes behind the computer industry were seen just a few years ago and the way in which they have actually developed. The articles cover the work and ideas of many of Europe's and America's most influential computer scientists.

Looking at anything with hindsight is a fascinating occupation. Given the giant leaps that are happening every year in the computer business, the progress achieved makes this book a highly interesting even necessary addition to anyone's computer archives.

D.M.

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Amiga Programming – The Choice

Susan Maxwell 'C's' the future for the budding Amiga programmer.

PROGRAMMING the Amiga is a challenge — it is not something that can be learnt overnight, nor is it a subject to be recommended for those who are afraid of a bit of hard work. But as far as home and small business computers go, the Amiga is in a class of its own. Everybody who perseveres for the first year or so ends up becoming totally and utterly hooked on the machine.

Which language should you use? Well, if you are new to the Amiga then its probably best to stick with C. Don't let anyone kid you . . . you MUST become fluent with C to make any headway with the Amiga and there are no exceptions to this. Every significant Amiga manual and reference book which has been written to date assumes that the reader is a competent C programmer. The C compilers available at the moment are expensive but we, like everybody else, are hoping that very soon a 'cheap C compiler' will be made available so that everyone can jump on the C bandwagon. If you think I am hardcore C programmer let me tell you I am most definitely NOT, but . . . I am a realist and the reality of the situation is that trying to program the Amiga without a knowledge of C is like trying to ride a bicycle without any wheels!

Basic on the Amiga is the language with which most newcomers will be most comfortable and it has the advantage that it comes free with the machine. Amiga Basic is actually quite good, is upwardly compatible with previous versions of Microsoft Basic and it has some useful 'enhancements' but . . . it suffers from the usual interpreted language slowness. Use it by all means but, if you want to make the most of its Amiga type facilities, you will find that you will need information that is only available in those 'C orientated' technical manuals.

"To be honest once a problem has been split up into reasonably manageable parts I don't really think it matters which language you use."

My language preferences? It usually depends on what I'm doing — and how much time I have. I often use assembly language simply because its good fun . . . to be honest once a problem has been split up into reasonably manageable parts I don't really think it matters which language you use. Don't think you must use assembly language to be a 'real' Amiga programmer — its not true and, just to put things into perspective, I will let you into a secret . . . Very often when you translate complicated looking assembly language code back into its high level equivalent — you quite frequently find that the low level programmer has written 'dodgy code' and got away with murder just because no one has realized. Assembly language is fast but its difficult to read and this often hides a multitude of sins.

So if you want to program the Amiga where should you start? This is a difficult question to answer because you will probably have to tackle several areas at once — there is a large amount of technical material concerning C, Intuition, AmigaDOS etc., that must be grasped before any headway can be made with actual programming. You should not expect magazines to teach you too much about the C language — there just is not the time and space available — but we can help by covering difficult areas and by explaining about the Amiga specific stuff that you will not find in the textbooks. We can show you what we have learnt ourselves, and pass on tips that we have learnt from others — but that will still leave plenty for you to do.

It may take six months to a year before you are happy with the technical manuals and during this time you will come across all sorts of areas which are not fully explained in your available reference books. When you come across a snag its usually due to one of two things . . . either you don't have the right technical information available, or you are misinterpreting the information that you do have. These are both areas where A.U.I. can, and will, try to help. We have got quite an assortment of Amiga experts available and, as always, you have an open invitation to pick our brains — quite simply all you have to do is ask!

S.M.

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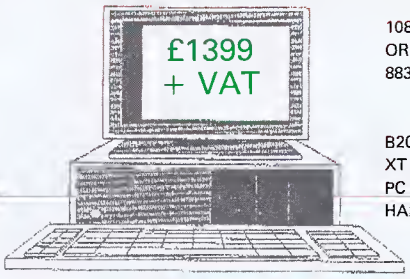

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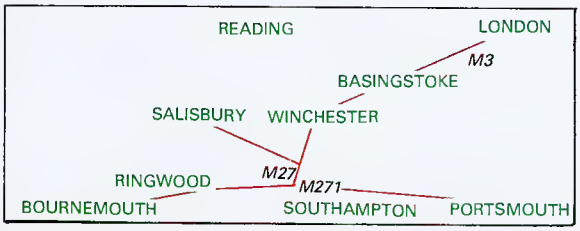
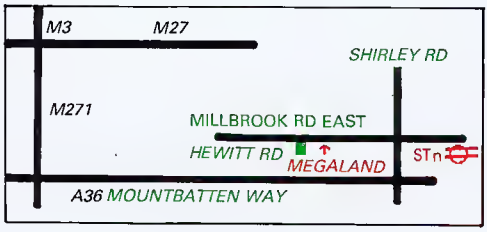




APPROACH VIA M3 TAKE M271 TOWARDS TOWN, TURN LEFT ONTO MOUNTBATTEN WAY, BEFORE STATION TURN LEFT TOWARDS SHIRLY AFTER 50 yds LEFT INTO MILLBROOK RD MEGALAND IS 250yds ON THE LEFT, 3 MINS WALK FROM STATION.

California GAMES

Epyx

A little over a year ago Epyx released the most original and playable installment in their 'Games' series California Games. After a long wait the Amiga version has finally turned up, but is it all it should be?

California Games abandons the fiercely competitive Olympic approach and instead gives us a taste of some of California's favourite pastimes. In the familiar Epyx fashion, each of the six events (half pipe, footbag, surfing, roller skating BMX and flying disk) can be practiced or competed in by up to eight players.

Half pipe skateboarding is played inside a time limit of one and a half minutes. In this time you have to perform as many kickturns, handplates and airiels as possible without wiping out more than twice. Timing is all important here; kickturns are fairly easy to pull off but hand plants require a very precise pump on the fire button. I was disappointed to see the main sprite moving so jerkily around the screen which takes a lot away from an otherwise enjoyable event.

"The idea is to juggle the small beanbag using only your feet, knees and head, putting together a string of varied combinations of moves for maximum points."

"As the screen scrolls to keep the frisbee in view you can line up the catcher with the help of the scanner"

You might think the potential for a game based around a footbag (or hacky sack) would be limited. In fact it has come out surprisingly well. The bendy sprite and wide array of tricks add to the fun.

For the next event, surfing, you are supplied with a perfect wave, breaking evenly from left to right. Your controls are straight-forward, just lean the stick left or right to turn the board, holding down the fire button for a tighter turn. Tube rides are possible but can be tricky to exit without wiping out. Impress your friends by gliding off the top of the wave, adjusting to the optimum angle and catching the surf on the way down! The original C64 surfer was (and still is) one of the best sprites ever seen on the machine. Sadly the Amiga graphics are much weaker, the board even changes shape as you turn! It has also lost most of its realism which is a great shame.

Roller skating is a simple right to left scrolling obstacle course. Steps, discarded ice creams, sandy patches and litter can be dodged or jump over. If you are feeling adventurous you can always throw in a few spins for extra points. The controls can be a little awkward but otherwise it is enjoyable.

Similar to the roller skating in its scrolling obstacle course format, the BMX is far more interesting. In this solo race across numerous humps and ramps, your rider can be persuaded to perform 360s and forward and backward somersaults. Make a bad landing and you'll get another couple of chances, but end up on your head and its curtains. This otherwise fun event is let down a little by dicey collision detection

In the flying disk (frisbee to you and me) you get to control both the thrower and the catcher. A Leaderboard-style power and angle meter determines the length of the throw. Three different catch styles earn varying scroes that are added to the distance of the throw. A bit easy but good fun all the same.

In its C64 form California Games is one of my all time favourites, so the inferior Amiga version is disappointing. In places the sound has been improved very slightly, and the flying disk looks a lot brighter, but apart from that nothing much has changed for the better. The half pipe and surfing don't play nearly as well. Fortunately the diversity of the events save it to some degree but anyone with a 64 would be well advised to track it down in its original format.

Graphics: 6
Sound: 6
Playability: 6
Value: 6
Price: £19.99

Action Service

Infogrames

Feeling fit? Like to give yourself a bit of physical torture? If so you just might be ready to take on infogrames latest release, Action Service. It's time for you to prove yourself as a real man and take up the challenge to become part of the famous (?!) Cobra Command team. Four punishing courses await you each one requiring different skills.

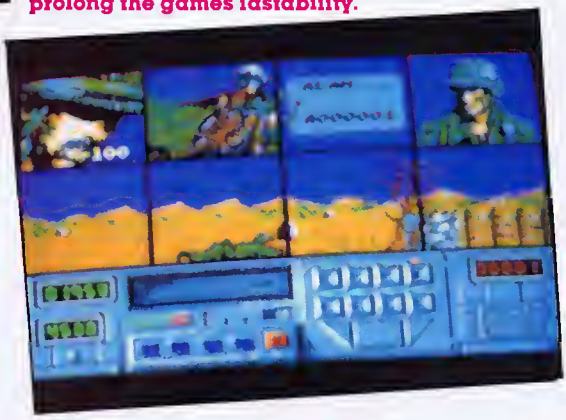
The playing area is made up of eight small screens (2 by 4) which combined, give the effect of just one large screen. You can control your soldier with joystick or keyboard, as the screen scrolls from right to left. At the bottom of the screen(s) is the control panel. Here you will find a mock video cassette recorder which allows you to record your last game and then play back the tape to see how well you did or didn't do. It also helps you to see your mistakes and improve on them if you made any.

Your objective is to reach the end of each course, tackling various obstacles depending on which stage you are on. The physical route is first. On this you must leap over walls, scramble under tunnels of barbed wire and jump over anything that may trip you up. If you can just manage to drag yourself past the finishing post you can then go onto the second route. The main difference here, is that you have to be cautious of bombs and grenades while trying to get out of Rex's way (a well disciplined and strong dog).

The third course has you fighting off your opponents in a bare nuckle brawl, then avoiding the occasional shower of rubber bullets. In the final course you have to battle your way through a combination of obstacles taken from the first three. To avoid ditches of water, monkey climb across on the overhead bars (this is also a good place to hide from Rex).

Throughout the game your leader will yell out commands such as "faster!", "stand up!", and "give me ten press-ups" in an American-Geordie accent. These must be done as soon as you hear them or you will be in for it. Although sometimes your leader gets a bit confused and has, on a couple of occasions, told me to stand up while still under some barbed wire (could be very painful!).

If you are feeling in a creative mood, you might fancy making up some of your own muscle building courses, using the edit facility. This is fairly simple to use and will certainly prolong the games lastability.



At first I found the game quite hard to get into, mainly because the instructions are too complex and have not been translated from French too well, but if you keep at it you will soon get the hang of it. But I think the game is best suited for older players rather than very young children.

There is no music (apart from on the title screen) but there are some good sampled sound FX and speech. The visual affect could have been improved — the graphics are not very much better than some you get on 8-bit games.

Action Service has been well programmed but there just isn't enough to it to rank it with the best. Original, and fun at times, good but not quite top class.

D.H.

Graphics: 6
Sound: 7
Playability: 7
Value: 6
Price: £19.95

Around The World In 80 Days

Pandora

The British software house Pandora has been on the go for a few years now, producing a steady stream of reasonable, if not shattering, leisure software on some unusual themes. Their latest release for the Amiga is Around The World in 80 Days, loosely based on the Jules Verne classic of the same name.

The story went something like this: It was an autumn evening just like any other in 19th century London. Tucked away in a quite corner of the city, in a discreet gentlemen's club, a young eccentric by the name of Phileas Fogg was indulging in perhaps a little too much wine. Encouraged by his friends he declared he would take on a completely unimaginable challenge - to travel around the world in 80 days.

Of course, nobody takes him seriously until he bets his entire fortune of £20,000 on the seemingly impossible feat and this is where you come in. The future of Fogg and his large stake lie entirely in your hands, as you leave London for India, Japan on to America and finally to return home to London within the allotted time.

The main screen consists of a world map, a calender display, three option icons and a pause icon. As the game begins you may elect to play cards or bribe the captain to go faster. But bribes cost money and that comes out of your £20,000 so you had better be a good card shark.

The card game is nothing more sophisticated than high/low. This is where you are given five cards, four of which are face down. You must then decide if the next card is higher or lower than the previous one. When (if) you've won some extra cash you can bribe the captain of the ship to go faster which saves time. Clicking play allows the game to continue to the first locality.

First off Fogg and his trusted butler, Passepartout, reach India. This is confirmed by a short newspaper cutting speculating whether Fogg can make it through the jungle then it's on with the action. These action screens are set in each of the four locations and each utilise the typical sideways scrolling idea. The backdrops are graphically quite reasonable and the sprites large, but the scrolling seems to have been borrowed from the Atari ST cousins - jerky and unstable.

What you have to do in India is unclear since the instructions don't seem to mention the birds, natives or the vicious lion. I tried spearing the lot but to little avail before time ran out.

In the end I found the game frustrating and perhaps even disappointing rather than the nice arcade/adventure I had expected I found a poor excuse for a shoot'em up. I have to to expect much better from Amiga software at any price, just compare Logotron's excellent Starray. The digitised sound is reasonable, but riddled with bugs and the game constantly spins the disk which surely can't do it any good, besides which the noise will get on your nerves after a while. Worse still, the game has a nasty habit of crashing at the slightest excuse. It may look nice on the stills, but avoid this one.

J.F.

Sound: 0
Graphics: 5
Playability: 5
Overall: 5
Price: £19.90

SPITTING IMAGE

Domark

I wonder what Domark had in mind when they bought the rights to publish a game based on the Central TV's satirical puppet show. The programme's format of a series of short comedy sketches has little, if anything in common with a typical computer game format. Sure enough, this absence of potential shows through in the resulting game.

A prophet tells of a time when the whole world has been taken over by an evil leader. Which leader it turns out it be is up to you. The Ayatollah, Thatcher, Reagan, Botha, Gorbachev and the Pope are the possible candidates. You have to decide which of these you would rather come out on top in this impending world war by taking control of him (or her) and beating the others into submission.

The character selection screen is guaranteed to raise a smile with its animated caricatures of the leaders.From then on it is depressingly downhill all the way. Choose a couple of characters and its on to the fight scene. Each opponent has four attacking moves and a sidekick to help them out. Blows to the head, body and feet take care of three, with the fourth varying from one character to another.

"From the keyboard you can call upon your sidekick who attacks your opponent with various projectiles, such as condoms and whisky bottles."

From the keyboard you can call upon your sidekick who attacks your opponent with various projectiles, such as condoms and whisky bottles. If you win three out of five bouts, its back to the selection screen to pick your next opponent.

It was vital that Domark did a good job with the graphics. They have done just that as far as the caricatures go. Wheeze-worthy as the

graphics are, they are wasted on such a simple, dated game as this. For one thing, beat 'em ups have to be convincing. The clown-like battles of Spitting Image are neither exciting nor amusing, and become tedious before you have even played all the characters. There is a pleasant rendition of the TV show's theme tune but the sound effects would be better suited to a shoot 'em up.

I can't say Domark have wasted the Spitting Image license, as it had little going for it in the first place. Twenty pounds for a five minute chuckle is definitely not my idea of value for money. Comedy and computer games rarely make a winning combination (remember The Young Ones?) and Spitting Image is no exception.

T.H.

Graphics: 7
Sound: 5
Playability 4
Value: 4

Price: £19.95

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PRO VIDEO PLUS

Indulging in a little character analysis, Peter Lee generates some enthusiasm for a high quality, high cost, professional program.

Even if it did not say so on the manual, the price tag tells the story — "Pro Video Plus is recommended tor professional use only."

And it fits the bill perfectly; this heavyweight tourth generation titling utility from JDK Images is a true state of the art character generator for the Amiga.

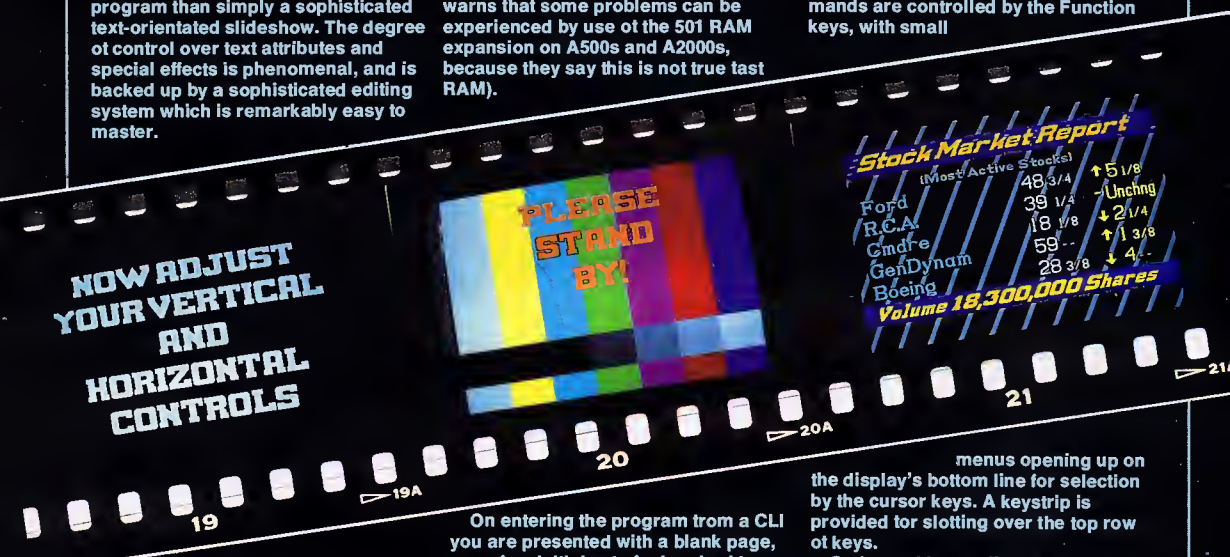
Written by a video professional, it combines a series of techniques which are way ahead ot the competition in this highly specialised tield.

PV Plus exists tor one reason — displaying text and images in TV applications.

But there is so much more to the program than simply a sophisticated text-orientated slideshow. The degree ot control over text attributes and special effects is phenomenal, and is backed up by a sophisticated editing system which is remarkably easy to master.

The program works in PAL display mode for entire screen imaging, and comes on a system disk which can only be accessed by entering a registration number. Each program has a unique number, so although you can backup your disk, this number still has to be input at the start ot every level. This will make the tracing ot illegal copies easier while still retaining the user's right to make a working copy of an expensive piece of software. There is also a demo disk in the package, which is completed by a large ring-bound manual whose only tault is a lack ot examples in the program's superb transitional effects.

PV Plus works only in the Amiga's high resolution mode and requires at least 512K tast memory, but preferably more to widen the number of screens you can score. (NOTE — the manual warns that some problems can be experienced by use ot the 501 RAM expansion on A500s and A2000s, because they say this is not true tast RAM).



On entering the program trom a CLI you are presented with a blank page, one of an initial set of a hundred to begin work on. Entering text on a line is simply a matter of typing it in, but first you would set up the text attributes required.

PV Plus is equipped with four tont styles — Modern, Roman, Traditional and Clean; they come in sizes 32, 48, 64 and 80 and can be typed in light, bold, italicised and underlined. Because of their specialist nature it is impossible to import any other tonts you may have, unless they are trom the firm's alternate sets.

Fonts can be of any colour — and if you want, can be in two colours mixed in a variety ot ways (from barber's pole stripes, cobble and metallic, to top and bottom halt colour split).

A line ot text can have any number of sizes and styles, and can be justified left, centre or right. Additionally there is a variable shadow option of any colour, and a very useful edging facility (for instance putting a black outline around light characters to make them easier to read — as they do generally on TV subtitles).

Once a page has been completed, moving to another page in the batch is easily achieved with a Function keypress; in tact all PV Plus commands are controlled by the Function keys, with small menus opening up on the display's bottom line for selection by the cursor keys. A keystrip is provided tor slotting over the top row ot keys.

So far nothing really outstanding; but where things start to evolve into the protessional league is in the transitions options. This is where the real powerhouse of the program lies

continued on page 76

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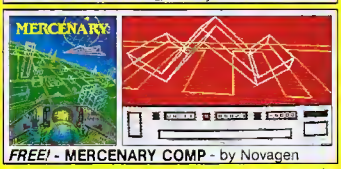

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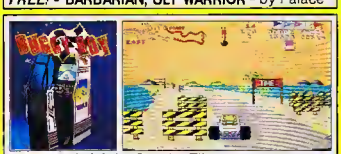

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PRO VIDEO PLUS

continued from page 74

which turns it from a character generator into a super page animator.

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Over 90 page effect transitions are supported; effects 0 to 32 affect whole pages, 33 to 91 act on specitic lines, while number 92 is set by the user. Once selected, each transition can be given a speed and dwell factor — how quickly the effect will last, and how long it will display the new page. After editing a sequence you can view the results by pressing the Escape key and going into Page Mode; pressing the up/down cursor keys allows you to see the sequence frame by frame. Or you can set the program to automatic and watch as many pages as you have defined play through.

A number ot effects are ingenious, and one ot my tavourites is the expanding and contracting screen, which either opens up from a single line, or compresses to a line.

What's more, it you have loaded in an IFF screen as a background, then this too is affected by the transition. The program allows picture to be loaded in up to memory limitations, and an image can be selected for use as a background from a list of those available.

Up to 16 colours are permitted per picture, which must be in high res. Once text has been added, the complete screen can then be re-saved as an IFF image for later manlpulation from within an art package — useful for registering where the lines of text are placed when considering designing a backdrop.

CLEAN FONT
abcdefghijklmnopqrstuvwxyz
ABCDEFHIJKLMNOPQRST
1234567890
!@#$%^&*()

ROMAN FONT
abcdefghijklmnopq
ABCDEFGHIJKLM
1234567890
!@#$%^&*()

TRADITION FONT
abcdefghijklmnopq
ABCDEFGH

1234567890
!@#$%^&*()

Modern Font
abcdefghijklmnop
ABCDEFGHIJKLM
1234567890
!@#$%^&*()

INCLUDED FONTS

Another way ot composing a background is achieved simply by defining a line of text. This can then be used as either pattern, staggering itself over the screen, or in vertical lines (wallpaper). This background can be copied to subsequent pages, or new ones designed for any other pages.

Colour cycling can be enabled, which as well as offering a semblance of animation of background pictures (provided they conform to be standard used in Dpaint) also nicely simulates metallic shimmering on text written in a range of one particular colour. The palette is also editable, though rather clumsily with RGB value controls. A small set ot graphics characters is available from the keyboard — arrows, trade-mark symbols and so on, and pressing the Help key displays a status line to help in memory management.

The program saves screens to disk in banks ot 100 regardless of how many frames actually have work on them. This includes all the text, line and page attributes, but not the font data or IFF images, which have to be present on disk when you next load in your work. There can be up to 2600 screens stored it memory allows, and as a matter ot interest, a databank of 100 pages takes up less disk space than one standard high res IFF picture!

CONCLUSION

Business and protessional software is priced at a level the market will stand, which in the case of Pro Video Plus is relatively high. There is little in the way of dedicated competition, and certainly nothing I have seen packs the power or the teatures contained in the program. The massive amount of data which can be stored both in memory and on disk makes it a highly cost-effective and efficient system. The effects, some needing substantial editing skills, are imaginative and very professional. If you are interested then ask to see the demo disk, which is a highly polished piece of work — though which I suspect took more than a little time to achieve!

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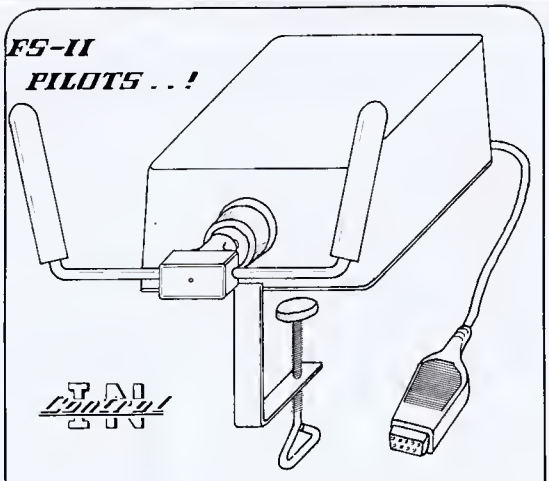

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Spreading the Load

Kuma Computers' K-Spread spreadsheet has been around for some time now - Mark Smiddy went for a tour around the current version

If you run a small business or do an sort of accountancy, then I am in no doubt you will have come across, or at least heard of - spreadsheets.

One advantage of K-Spread is its compatibility between other Kuma releases like K-Data and K-Word, so you could feasibly run your entire operation using just Kuma software.

K-Spread is supplied on one disk with a 74 page indexed manual. There is a lack of a "cheat sheet" or on-line help, perhaps Kuma could include these in future releases - they make life much easier for experienced users.

The program comes in two separate versions - with or without graph plotting capabilities. The two versions look very similar, the graphs appear as an extra part of the Display menu.

From startup, the most notable thing about K-Spread is the unusual and sometimes eccentric design - in places it looks as if the programmer included a feature for himself and then left it in the final version. This is most apparent in the way data and formulae are entered. The display consists of two windows; the main or sheet window and a smaller editing window tucked away in one corner. The title displayed in the window prescribes what will be entered in to it: Value, Text, Label or Formula.

The system works well, until that is you decide to expand the sheet to maximum size. Now the editor window gets pushed behind the main screen and you can not see what you are typing. Bringing the editor to the front remedies the situation slightly - but now obscures part of the sheet itself.

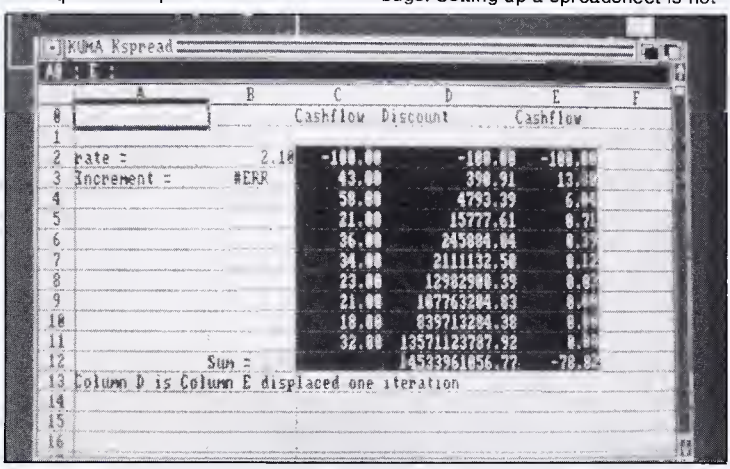
Moving around the sheet is achieved by an equally strange method. Pressing Return enters the data at the current position as you might expect - however pressing Shift+Return holds the cursor over the current cell. Similarly holding Shift while using the cursor keys enters data at the current cell and moves the cursor one position in the selected direction. Finally, holding Shift while keying the left mouse button pulls the cursor immediately to the cell being pointed at. Criticism aside though, this system does work very well once you get used to it.

Spreadsheets are of course about calculations - lots of them and mostly repetitive. K-Spread features all the normal arithmetic functions like */+- -it can even compute simple trigonometric equations. Surprisingly it makes no allowance for even basic financial computations like VAT discount and compound interest. Even so these can be entered in longhand. This omission does reduce the usefulness of K-Spread for advanced financial management - especially since the manual does not give details of the equivalent equations.

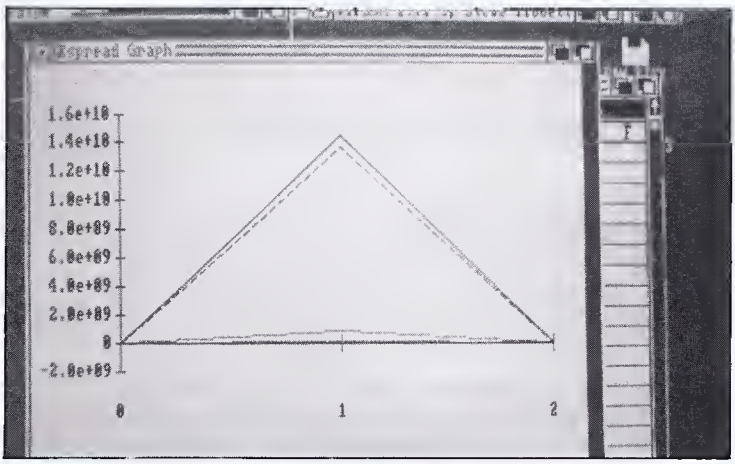
'When you "paste" the cells in their new position a small requester appears asking if a formula amendment is required — this ensures newly pasted formulas point to the correct positions within the sheet.'

It makes up for some of its flaws by a range of useful features like Askn which prompts the user to enter a value at the current cell *during the recalc phase*; that is while the spreadsheet is being worked out. It even has some simple string functions and the ability to date and time any cell - this may for example come in useful for weekly reports.

Speaking of calculations and formulae brings me to another subject - bugs. Setting up a spreadsheet is not



Spreading the Load



"The highlighted section can then be picked up like an icon and easily copied to another part of the sheet"

unlike writing a program in some respects and is just as prone to errors - and mistakes cost money. To help find bugs K-Spread operates simple but effective debugger. This has the useful feature of being able to flag a cell when its value goes zero, positive, negative or just changes value, during the recalc.

There are times when you need to select a range of cells and K-Spread makes this very easy - provided they are all visible. Holding the left mouse button and moving around the sheet -a system GEM programmers call dragging - highlights a range of visible cells. The highlighted section can then be picked up like an icon and easily copied to another part of the sheet.

When you "paste" the cells in their new position a small requester appears asking if a formula amendment is required - this ensures newly pasted formulas point to the correct positions within the sheet. During the "cut" operation, if the pointer is moved outside the window the selection stops - I would have liked to have been able to select more cells in this way, perhaps by automatically scrolling the sheet when the pointer reached the boundary.

A similar method has been employed to expand the width of columns - clicking in the bottom left of a column heading causes a small rubber-box to appear which can then be dragged to the desired width.

"No modern spreadsheet would be much use without graphics. K-Spread does have graphics - remember there are two versions on the disk - but they are a little basic considering the power of the Amiga."

No modern spreadsheet would be much use without graphics. K-Spread does have graphics - remember there are two versions on the disk - but they are a little basic considering the power of the Amiga. Five options are available: horizontal and vertical stacked or clustered bar charts, variations on the same theme and a line graph. Another staggering revelation - 3D I can live without, but no pie charts or scatter graphs! What are Kuma thinking about? Thankfully it is not all bad - at least it is possible to annotate the graph and print the results.

The current version of K-Spread 2 looks in places like it was put together in a hurry - even parts of the Intuition interface looks like visual ports from the ST version and the example files contain errors. Worse still, the one supplied for review went Guru so frequently - almost at the drop of a mouse - I was almost completely unable to write this review.

Nevertheless, I have an high regard for the usual quality of Kuma products in general, and can only assume they will get these problems ironed out very soon. If, and only if they do then K-Spread 2 and when it appears K-Spread 3 look like being very strong contenders for the crown of the best Amiga spreadsheet. I say this because even though it is lacking in some respects - it also includes some features only usually found on software costing many times the price.

M.S.

Positive Points: **Feature packed, flexible, compatible other Kuma products, excellent Debugger, reasonably fast, supports landscapes and portrait printing.**

Drawbacks: **Non-standard design, mediocre manual, very basic graph plotting facility, messy editor, no "direct mode".**

Editorial notes: We have contacted Kuma about the problems we have highlighted and they assure us our disk was a faulty one which eluded their rigorous quality control. Release versions of K-Spread 2 are very stable unless memory is at a premium. K-Spread 3 for the Amiga is currently under development and should be available soon — watch this space.

Contact: Kuma Computers, 12 Horseshoe Park, Pangbourne, Berkshire RG8 7JW
Tel: 07357 4335

Product: K-Spread 2
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EXPAND YOUR GAMES PLAYING MEMORY!

Dragon's Lair Competition

READYSOFT, the up-and-coming U.S. software company have set new standards for home computer games with their amazing new Dragon's Lair on the Amiga. Brilliant though it may be Dragon's Lair has one big problem. It is just too damned big. Yes, it has got so much stuff crowded into it, especially the stupendous graphics (undoubtedly the best yet on any home computer) — that in spite of the six disks, it will only run properly on an Amiga with sufficient memory, an A2000, A1000 or here come the kicker an expanded A500. If you have one, okay, if not you are going to have to sit with your mouth-watering while the lucky expanded ones get their hose torn off by the Dragon. (You do know that hose was something they wrote in the middle ages, didn't you?)

That is unless you enter this Dragon's Lair Comp. of course. Because Entertainment International, who distribute Dragon's Lair in Europe have given us two terrific ½ Meg expansions for the A500 for Comp Prizes plus a copy of Dragon's Lair for each of the two lucky winners.

So if you would like to expand your gamesplaying memory all you have to do is answer the following questions:

1. What is the name of the daring young knight in Dragon's Lair?
2. What is a dirk? (Not the guy's name!)
3. What is the object of the hero's quest?
4. Which team programmed Dragon's Lair on the Amiga?
5. With what did the coin-op replace conventional bit-mapped graphics?

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PHOTOCOPIES OF THIS COUPON WELCOMED!

While Probe are still working away at US Gold's official Amiga version of Roadblasters, Anco have come up with an altogether outstanding alternative Spy Hunter/Outrun hybrid.

There's (Thank you for that sensible action, Anco!) no background scenario attempting to justify the game. It just has simple instructions to reach the end of each stage in the fastest possible time. Of course you are not alone on the roads; enemy cars and convoys of trucks often clog up the lanes. Clearing the way ahead is easy with your onboard gun. Just a single shot sees of the smaller road-users without so much as a puff of smoke.

Your transport is a stocky little customised family runabout. Disgustingly coloured in a dark shade of brown, this unlikely motor is extremely tough. In fact, it can survive any number of collisions with other cars. Constantly dwindling time and fuel levels are your main enemy.

High

Anco

H

Fuel can be topped up by driving over the star symbols that occasionally appear. Extra time is gained by performing the strange practice of jumping up at overhead signposts.

Tyre wear, fuel and engine temperature are all represented by unmarked gauges, and as such are more confusing than helpful. A scrolling map of the track gives advance warning of any bends and bridges, along with

'Not only is there a great danger of your car conking out half way through the game, there are grenade-lobbing assassin cars, roadside obstacles and rivers to watch out for.'

time and score counters. Not only is there a great danger of your car conking out half way through the game, there are grenade-lobbing assassin cars, roadside obstacles and rivers to watch out for.

Once you reach the end of the course, your credit balance is calculated from your performance in the last race. With this cash you can buy better weapons and equipment, or even a faster car. You need so much dough to get anywhere near the decent upgrades that you are forced to battle on with the basic set-up for most of the game. More readily available weapons would have been welcome.

One thing Highway Hawks has over many of its rivals is proper 3D graphics. If you have played Outrun or Fire and Forget you will be familiar with the "cardboard cutout" effect of their flat graphics. H.H. avoids this with

way awks

excellently realistic perspective on all the cars and trucks, it's just a bit of a shame they

'There's a fast frame-update rate and a very smooth road to boot.'

themselves weren't drawn a little better. Still, there's a fast frame-update rate and a very smooth road to boot.

While the game loads, there is a curiously irrelevant intro in which a skull emerges from a flaming pit, and a second or so of music that continually loops back on itself. Fortunately the sound effects are a lot more appropriate, few as they are. Roadblasting with H.H. is great fun.

After you have played it for a bit thdt you think there is no real goal to go for except the extra weapons and cars, H.H. makes a terrifically satisfying mix of racing and meaningless destruction. At the price it is undoubtedly the best quality and value to emerge in this kind of game. Anco have totally excelled themselves with this one. Go buy Highway Hawks, you can't fail to enjoy it. Highly recommended.

B.V.

Graphics: 7
Sound: 6
Playability: 9
Value: 8
Price: £19.95

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BATMAN	44.90	22.44	49.90	23.46	49.94	21.46	49.94	21.46	49.94	21.46	54.90	23.42	49.90	26.46	44.94	22.46	54.94	24.46	44.94	23.46
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OUNGEON MASTER (1 MEG)	44.94	22.46	49.94	23.48	49.98	21.48	49.98	21.48	49.98	21.48	54.94	23.44	49.94	26.48	44.98	22.48	54.98	24.48	44.98	23.48
ELITE	44.90	21.44	49.90	22.46	49.94	20.46	49.94	20.46	49.94	20.46	54.90	22.42	49.90	25.46	44.94	21.46	54.94	23.46	44.94	22.46
F16 FALCON	49.94	23.96	54.94	24.98	54.98	22.98	54.98	22.98	54.98	22.98	59.94	24.94	54.94	27.98	49.98	23.98	59.98	25.98	49.98	24.98
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FISH!	44.90	21.44	49.90	22.46	49.94	20.46	49.94	20.46	49.94	20.46	54.90	22.42	49.90	25.46	44.94	21.46	54.94	23.46	44.94	22.46
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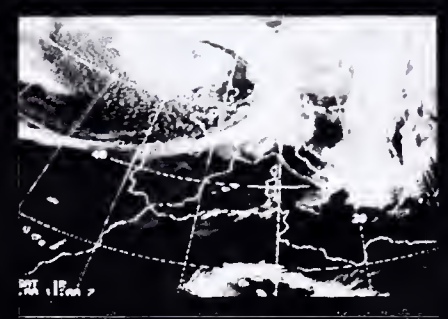

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Amiga Disk Drives Inside & Out

Abacus

Mark Smiddy casts a critical eye over a new guide to the Amiga's disks

Amiga Disk Drives Inside & Out, is a long book at over 330 pages. At first viewing, you could be forgiven for thinking it actually contains a lot of very useful information on the drives - well, it does, but only up to a point.

The title is in some ways a little misleading - because this is a book which only concerns itself with the software interface to the hardware.

It does not attempt to discuss the electronics involved, or the drive mechanisms themselves for that matter. Nor does it cover hard disks in any great detail, although much of the information is interchangeable; under AmigaDOS hard disk partitions and the reset proof RAM disk, RAD: look just like floppy disks.

The structure of the book is split in two uneven parts. The first - and largest being the text itself which is sub-divided in to nine chapters. As is usual with Abacus books, the sub-dividing of chapters in the contents is clear and well thought out but the index is just short of abysmal - Will they ever learn?: Reference books like this require prolific indexes.

The first four chapters very briefly skate over the Workbench and CLI and end up with some examples of file handling in Amiga Basic. Quite why the authors bothered to include such things is not obvious; the word padding comes to mind.

They then launch into a discussion of the internal organisation of AmigaDOS. This middle third or so of the book is in fact the only place any useful information is divulged - leaving the poor expert rather starved after what looks like a promising opening.

By chapter six, there comes the interesting reading. This delves into the complex structure of the ROM itself and explanations of the various block structures used by DOS. This includes fully annotated dis-assemblies of Kickstart 1.2 with the important routines clearly highlighted; the sort of information which virus creating idiots and experts alike crave for. It goes on to explain the checksum and hash sums, how they are used and the connections between the block structures.

After a brief mention of viruses - in which the authors dispel the myths about battery-backed viruses, comes an explanation of one of the fundamentals of DOS - the Trackdisk device. This explains how trackdisk works, what it does and lists the various commands available to the programmer. This information however requires a working knowledge of C to be of any use.

Finally there is an explanation of how to get at the disks without resorting to DOS. This features a discussion of MFM and GCR disk formats and how the Amiga uses MFM to cram so much on a disk - as a general rule, the maximum capacity of a soft sectored MFM formatted disk is about 720k is data security is to be maintained.

This section goes on to explain how it is possible to grab information from the disk by accessing the hardware directly - even so most of the listings are direct disassemblies from the Kickstart ROM so most of the listings would have to be modified. They are only provided to further illustrate the text. This part requires a good knowledge of 68000 assembly language.

The second part of the book forms the appendices, over 120 pages long. They consist of three very large program listings: a disk monitor, drive accelerator and a copying program. All of these are written in assembler using the non-standard, Abacus AssemPro. Users of other assemblers may find themselves a little in the dark.

Frankly therefore, I do not believe anyone would have the stamina or courage to type in any of these, so Abacus come to the rescue with an optional diskette. Since this disk was not supplied for review I can not comment on it, however.

The usefulness of the programs is dubious too. The drive accelerator for instance, will only work with a 1.2 Kickstart ROM because it uses illegal calls directly in to the ROM itself. As for the monitor there are probably better ones in the public domain; the copier and its associated text I find a doubtful addition, since it could help would-be software pirates.

In the end then, this is a book which falls short of what it was intended to do. Much of the information contained is an uneven mish-mash of good and bad ideas padded out with, at times, a very flowery text. Beginners will find much of it too heavy and experts in places, find it too simplistic.

If this book was cut to half the size and half the price then it would probably be a good buy. Similarly, if it paid more attention to the hardware as an entity rather than an interface, then it would be a concise reference. For all of this books faults though, some may still find a use for it — if they are prepared for a lot of digging.

M. S.

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AMIGA PD

Free, Gratis and Practically for nothing

Stuart Williams tries out some communications and archiving software that will not dent your budget

This month we are looking at Public Domain and Shareare programs for the Amiga communications fan. I am pleased to say that there are a few real gems out there in this field, if you know where to look!

AMICTERM

Those of you who have been following this column regularly will recall that WC covered an excellent communications terminal program called Comm 1.34, back in the May issue. Good news for fans of Comm, and those in search of their first terminal program is that there is a much enhanced 'Comm-Clone' available on Fish Disk 82.this program, AmicTerm, was written by David Salas and Albert Kirk, and like Comm, it is in the Public Domain (a later and more complete version of AmicTerm is now on sale commercially in the United States — this has not affected the PD status of the earlier version reviewed here).

As with its popular predecessor, AmicTerm has Xmodem, Windowed Xmodem and ASCII Text file transfer, and is fully configurable to suit any scrolling text service (ie most Bulletin Boards and commercial electronic mail service). Operation is by mouse and pull down menus, not only from the menu bar at the top of the screen, but from an extra vertical repositionable bar (not included in Comm), which appears to the right of the screen when the program runs up. This bar enables selection of most functions by pointing and clicking with the mouse, without having to pull down a menu first, and is very useful indeed, being rather faster in operation. Of course, for the purist who likes a plain screen, this 'floating' menu can be tucked out of the way behind the main text window at the click of a button.

Apart from having some extremely stylish file and option requesters, including a completely new autodialling menu system, AmicTerm has a number of 'bells and whistles' which make it easier and more pleasant to use than Comm. This particular version, .50 (beta), includes a script control language, a choice of display beep or audible beep for alerting you to various program actions and warnings, and autoredialling. I would be interested to find out if there is a later version available, as one of the unimplemented features in this version is Zmodem file transfer, which is somewhat more efficient than standard Xmodem, but less commonly used. AmicTerm's only disadvantage (as with all US originated comms programs) is that the baud rate options do not include 1200/75 baud, which means you will not be able to use a cheap 1200/75 only modem with it. Those with speed buffered modems will have no problems, of course.

In all, then, AmicTerm could be the program for you if you are looking for a good, practical terminal with plenty of facilities and stylish design. A significant improvement on Comm 1.34, and well worth acquiring.

Vt100

Fish Disk 47 contains an interesting little terminal program called Vt100. As you might imagine by the title, it is a DEC VT100 terminal emulator! How comprehensive the emulation is,I am not sure,since we do not have a DEC minicomputer to hand to link up. However since the program runs in hi-res interlace mode, it seems likely that it is at least capable of the 132 column display beloved by DEC.

While Vt100 is a little sparse on

AMIGA PD

features compared to Comm 1.34 or AmicTerm (it has no autodial menu or telephone directory, for instance), it does include xmodem file transfer, and Kermit file transfer, which means it could prove useful to the student or educational user who has access to a university minicomputer or mainframe from home. Vt100 is fully configurable for all the popular speeds, except like AmicTerm, 1200/75 baud.

While Vt100 will not set the world alight, this program by Dave Wecker could prove complementary to more powerful programs such as AmicTerm, in view of Vt100's inclusion of Kermit file transfer.

This version of Vt1000 is 2.4, and is in the Public Domain.

ARC

There can be few communications fans with Amigas, indeed with many different computers, who have not heard of ARC, the ubiquitous file archiver which enables you to compress a whole series of files by as much as 30%, and seal them up within one library file. The great advantage of ARChived files is that not only do they take up much less space on a disk, as well as occupying one directory entry instead of many, but they are much simpler and quicker to download from, and upload to, bulletin boards and other online remote computer services, as a consequence of this.

The great advantage of ARC is that it is much the same from machine to machine, so that files ARCed on the IBM PC, for instance, may be unARCed on an Amiga. Its sole disadvantage on the Amiga is that it can only cope with CP/M and MSDOS filename conventions of a maximum of eight characters plus a three character suffix, therefore lengthy Amiga-style filenames must be amended before being ARCed.

The version of ARC on Fish Disk 70 is Amiga version 0.23, which is a port of ARC version v5.0, binary only, without source code. The program, published as Shareware by System Enhancement Associates, was written in its Amiga version by Raymond Brand, and the publishers suggest a $35-$50 donation if you use the program regularly. Certainly, ARC is an essential tool for the Amiga comms user, particularly is you frequent the bulletin boards and the depths of Compunet in search of PD software!

ZOO

Similar in concept to ARC, ZOO is used to create and maintain collections of files in compressed form. It uses a Lempel-Ziv compression algorithm that gives space savings in the range of 20%-80% dependent on the file data type, and is therefore potentially rather more efficient than ARC in this respect.

It includes several features lacking in ARC, mainly to do with manipulation of files within the archive file, but perhaps the most important of these features to the Amiga user is the fact that it allows file/path names up to 255 characters in length!

The version of ZOO on Fish Disk 87 is 1.42A, binary only, and is Shareware. The original author is Rahul Desai, and the Amiga port was implemented by Brian Waters.

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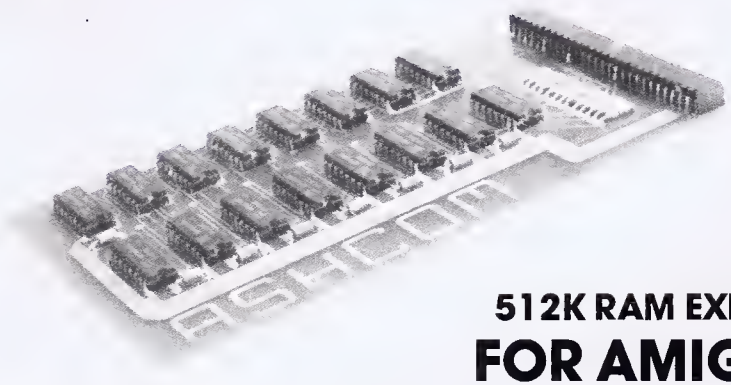

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GETTING YOUR CIX

Stuart Williams offers advice on a public service that can get you communicating with developers and others in the Amiga avant-garde.

THIS month I link up, log on, and look into what is to be found for the Amiga user on the 'Compulink Information exchange' in the first of a communications mini-series looking at some of the popular remote database services which you can access with your Amiga, modem and terminal software via your telephone lines.

What is the Compulink Information exchange (CIX for short)? Well, the CIX system is run as a facility for members by the Compulink User Group, a commercial club whose main claim to fame is their enormous library of (mainly MSDOS) Public Domain and Shareware software, which can be purchased by members for $3.45 per disk. It is something of a communications hybrid, which while maintaining the professional feel synonymous with the US commercial hobbyist services such as The Source and Compuserve, is rather smaller and more limited in scope, owing much to the philosophy of the 'bulletin board' type of non-commercial remote computer system, and retains the friendly, 'clubby' feel of the hobbyist bulletin boards. Unlike a bulletin board system, however, CIX is a multi-user, multi-port dialup system.

CIX is not intended to be a huge database of information (although it does contain the international 'Newsbytes' news files), or an international electronic mail service. It does provide the opportunity for computer hobbyist, student and professional to get together in congenial fashion, swap hints and tips, and have long and complex 'conferences' on various computing topics, which range from the latest game to obscure bugs in C compilers! Those familiar with the BIX (Byte Information exchange) system run on a larger scale by the huge US magazine Byte will know what to expect, as CIX uses substantially the same CoSy computer conferencing system.

"Conferences take the form of lengthy linked chains of messages, replies and comments categorised by subject subheadings."

This multi-user Unix based system allows direct chat between users (who are able to tell who is online and redirect input to them), and also allows comment and expression of opinions (which can sometimes become very heated!) via the conferences. Conferences are a somewhat more sophisticated version of the type of message areas found on traditional non-commercial bulletin board systems, and take the form of lengthy linked chains of messages, replies and comments categorised by subject subheadings. The range of these subjects is wide, covering many kinds of computers, software, programming and to a lesser extent topics of general interest, such as literature and journalism. Of course, if you feel a subject is missing, then you are quite welcome to stand on your soapbox and start up your own conference, but be prepared to put a little effort into stirring up interest and keeping things tidy!

The Amiga is well catered for, and has several linked conferences with respect to hardware, software, news, etc. One of the great advantages of CIX is that many of the Amiga software developers and journalists have CIX accounts, and generally speaking they are a very helpful lot! If you look around you may find Jez San of Starglider fame, as well as programmers from other companies, or even Amiga User International journalists! Certainly, if you want the latest news about the Amiga hardware and software, then short of dialling the US, CIX is the place to be. Don't let this put beginners off though, as much good advice is to be had at all levels of experience, and all are welcome.

While CIX is not an electronic mail service, and has no outgoing ports to other systems, it does have a sophisticated internal mail system, which allows you to prepare lengthy messages and replies to messages to be prepared while offline using your favourite text editor (or ASCII word-processor) such as Micro EMACS, Scribble or any other program which allows for the saving of a straight ASCII text file. Your terminal software can then send your text file along the 'phone line to CIX after you have logged on, much faster than you can type it in, saving a considerable amount of time, and therefore reducing your telephone bill! Likewise, you can save time and money by receiving messages and information onto your disk in text file form, and reading, editing or printing it later offline.

"It is possible to set up your Amiga to dial up and log on to CIX, collect your mail and log off again, in the middle of the night if you wish!"

Like the majority of other bulletin board or email systems, CIX uses a scrolling text system; while this does not look as pretty as, for instance, Compunet or Prestel, it does mean

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that you have a vast choice of terminal software available, from the cheap and cheerful Public Domain offerings (Comm 1.34 and AmicTerm are highly recommended) to the sophisticated commercial packages such as A-talk III. The advantage of the commercial programs is that many of them are able to run your system unattended after being programmed in 'script language', this means it is possible to set up your Amiga to dial up and log on to CIX, collect your mail and log off again, in the middle of the night if you wish! If you require this facility, it may be worth the £50-£100 it will cost you for a commercial programmable comms system.

What is needed to access the Compulink Information exchange? Well, apart from your Amiga, you need a modem and terminal software. CIX accepts modem transmission speeds from 300 baud (V21) up to 2400 baud (V22bis) full duplex, with full MNP error correction if your modem or software has that facility – this means no rubbish on screen from a bad 'phone line if you are so equipped. You are also able to use a cheap 1200/75 baud modem (V23) if your software has the special split baud rate capability which is unique to UK written terminal programs. If you are the proud possessor of a Hayes compatible 'intelligent' modem, you will have no problems, as these systems are speed buffered, which will allow the computer to communicate with the modem at 1200/1200 baud, and output to the remote system (CIX) at 1200/75 baud – the Miracom WS4000, Pace Linnet or Microlink Multispeed are commonly available examples of this kind of device. This will allow you to use any US originated comms program with a UK service at 1200/75 baud. See the November and December issues of Amiga User International for more detailed information on modems and communications software.

"A cheap second hand 300 baud modem with manual dial will work with a Public Domain program and get you online to CIX for as little as £25."

All this may look expensive, and it can be a major investment if you want maximum sophistication for your comms activities, whether on CIX or otherwise. Not to worry for those of you on a budget, though, as a cheap second hand 300 baud modem with manual dial will work with a Public Domain program and get you online to CIX for as little as £25! While this offers little in the way of automation, it will at least give you a taste of comms without committing you to a spending spree.

Since CIX is based on a London number, access will naturally be cheaper for those within local call range of the capital. Those on low-cost routes (check your 'phone book) to London will likewise not find charges too expensive. However, if you have to dial normal long distance, you may find CIX a little expensive to use for long periods. The system does, however, have Mercury X.25 data line access from most parts of the UK, and this could provide a significant saving if you anticipate regular long distance calls.

Who will benefit most from CIX? The professional or serious Amiga user into programming and hardware or software applications, the comms enthusiast, and the active hobbyist will love it. The games fanatics, however, will find little to interest them. If you want to chew the fat with those in the know, and be in on the leading edge of Amiga activity in the UK, however, CIX is probably the place for you!

Details of current CIX subscriptions can be had by contacting Compulink User Group on 01-390 8446.

S.W.

continued from page 48

font that resembles the conventional typeface Metro Medium. Its 12 point size was designed for desktop publishing use with the Amiga's medium resolution mode. As such, it produces a clean-looking result that is reasonably easy to read.

There is also a 29 point Metro Demi Bold that resembles that once popular newspaper typeface Metro Black, and a 34 point Metro Display. This is a heavy type with a 1930s Art Deco tinge to it. Both are good display faces that could prove useful. Metro Demi Bold is rather spoiled by the jaggedness of its outlines, so that Metro Display looks better, if somewhat blocky, on paper.

Leander, in 27 point, is a thin sans serif type that resembles in many respects one of the most successful of modern typefaces, Adrian Frutiger's Univers. It could have been simpler and more effective though — its lowercase 'y' is extremely ugly.

Sausage and Spot are both very heavy sans serif faces, of the sort that the Victorians used on posters. Sausage is in 31 point which is not really big enough. Its bulk would look more effective if it were larger. Spot it slightly bigger, though the size is made up by adding a white outline to the letter, giving a three dimensional effect.

The final two sans serif fonts are the sort that could only exist in an electronic medium. Raster, in 28 point, is a coarse face with serrated edges. It is extremely unpleasant and I cannot think of nay circumstance in which I would wish to use it. Scanner is much better, although it is of limited utility. Each character is formed from a sequence of lines which, used in the right circumstances, look good and print well.

The two most popular sources of alternative bitmapped fonts for the Amiga so far have been Earthbound Fonts' inexpensive conversions of public fonts that were originally created for Apple's Macintosh computer, and the three volumes of Zuma fonts.

Both provide better value than Media Line's Amiga Font Disk 1. Earthbound Fonts offer a far greater variety and number of typefaces. Their limitation, like Media Line's, is that most of the fonts come in a small or medium size.

Zuma's fonts are limited to three to each volume. But each one comes in six sizes. And each size comes in two versions so that their proportions will match the Amiga's different screen proportions. Zuma's fonts tend to range from 20 to more than 100 points, so that they are for printing headings rather than the body text. But Media Line's two body-text fonts are no better than the Granite, Marble or Serpentine fonts supplied with ProWrite.

For titling videos Media Line's font collection cannot compete with such specialised programs as Aegis' Video Titler or Zuma's TV*Text and TV*Show, although it is much cheaper. It's a package that rather falls between every stool. Most of the fonts are run-of-the-mill stuff displaying some of the less attractive aspects of bitmapped graphics. Most, too, are supplied in only one size. Of the more novel fonts, only Spot and Scanner offer anything that cannot be obtained elsewhere and which begin to exploit the possibilities of computerised printing.

J. W.

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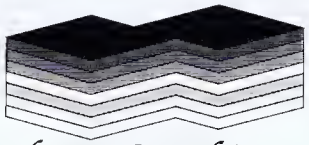

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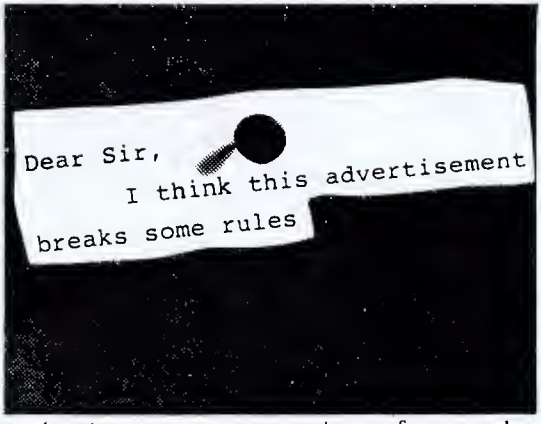

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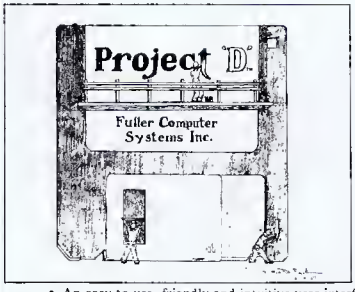

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STOP PRESS!

Hardware from CBM

Upcoming hardware from Commodore has been promised, but never discussed. The latest whispers, however, are very promising. We hope to soon see: The Professional Video Adapter, a combination of digitizer, a frame grabber, and a combination genlock; and, a Amiga High Resolution Color Graphics Band, with 269 colors (from a pallette of ½ million. For both pieces of hardware, an Amiga 2000 is needed.

TIMESCANNER

Timescanner, the Sega arcade conversion, now licensed to Electric Dreams is heading your way in April. The game consists of four levels: Volcano, Saquarra, Ruins and Final. Levels are divided into two screens and the machine scrolls between the upper and lower parts of that level. Each level is only accessible via a time tunnel on the previous level. Entry to the tunnel depends largely on your pinball skills.

Electric Dreams says, "Take notice of the: realistic nudge and tilt feature; the multiball facility of up to three balls on screen at any one time; the six flippers on the screen; the double length, double height screens; and the special final bonus screen."

Available on Commodore 64 Cassette (£9.99), Commodore 64 disk (£14.99), and AMIGA (£24.99). Contact: Electric Dreams, Blake House, Manor Farm Road, Reading, Berks RG2 0JN, Tel: 0734 311666.

Tempestuous Tags

In Los Angeles, dog owners tag their pooches with electronic chips in case the dogs ever get lost. Electronic tagging obviously takes on different applications in the UK.

Tory MP Sir William Shelton has called for electronic tagging of criminals to be extended to include prostitutes.

Shelton said that electronic tagging would serve as a curfew and keep prostitutes indoors.

The idea has outraged Labour MP Frank Dobson, MP for Holborn and St Pancras, who calls the scheme 'a gross invasion of peoples' civil liberties.'

A pilot electronic tagging scheme is soon to be introduced for offenders on probation. Shelton said that this could be an option for prostitutes and curb crawlers.

The idea of electronic tagging was first introduced by Home Secretary Douglas Hurd last October as an alternative to imprisonment.

Tagging is widely used in the US and if successful in the UK, non-violent offenders could find themselves fitted with what Hurd termed an 'electronic bicycle clip'.

Some are of the opinion (we have heard) the MPs should be tagged. But perhaps tracking their whereabouts is better left to the tabloids. We would not want to harm the yellow press industry.

Million Dollar Software Acquisition Drive

The Disc Company has unveiled its plans to invest over $1.000.000 during 1989 to acquire innovative innovative software products for the Commodore Amiga computer.

With its corporate offices in Ann Arbor, MI and European headquarters in Paris, France, The Disc Company distributes its products through an international network of distributors in North America, Europe and Australia.

TDC will launch an international advertising campaign in all the major Amiga periodicals informing independent software developers of the benefits offered to TDC's creative artists, the Company tells us.

"Usually, developers go through a national publisher that will in turn license the software to another publisher abroad, thus reducing the royalty revenues to the developer", explains Howard Marks, managing director of the European Operations. "We are the only Amiga specialized company to offer worldwide distribution without sub-licensing to other publishers, which means higher revenues for the developer", Marks continued.

TDC guarantees a two week review process and accept submissions written in English, French and German.

The Disc Company is an International publisher of Amiga software. Its main products include KindWords, The Critic's Choice integrated business package, The Publisher's Choice desktop publishing package and Superback, the fastest hard disk backup utility.

Contact: The Disc Company, 1 Rue du Dome, F-75116 Paris, France, Tel. (33 1) 45 53 10 53, or for the United States Office: 3135 South State Street, Ann Arbor, Michigan 48108, USA Tel. (313) 665-5540.

VINDICATORS

Don't get mad — get even! "VINDICATORS", the first in the exciting line-up of TENGEN titles from Domark is set to invade your home computer in mid-March.

"VINDICATORS" is a 3-D, multi-directional scrolling tank game with a high element of strategy, and features a continuous buy-in feature allowing another player to join in at any time.

Date: The year 2525. Place: Outside Galaxy TR15. As Team Commander of a SR-88 Strategic Battle Tank take control of your own destiny in your bid to attack and destroy the invading forces from the evil Tangent Empire. Your goal is to proceed through fourteen space stations, securing each by demolishing its control centre.

As you defeat each station, don't forget to take the supplies that the fleeing Tangents have left behind.

This explosive home computer challenge is the first from Domark on the new Tengen label and is available on the following formats: Commodore cass (£9.99); Commodore disk (£12.99); and Amiga disk (£19.99) (PC version to follow shortly).

For further information, Contact: Beverly Gardner. Tel: 01-837 4175

DPT Low Cost Printing

Mitsubishi is lowering the cost of full-colour printing for desktop publishing and presentation graphics users.

The G330 thermal-transfer printer costs £2,990 — less than half the price of similar products, Mitsubishi told us.

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